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PEARSON, O.P.

JUNE 1950 - JUNE 1954

1- COLOMBIA, S.A.

JUNE - AUGUST, 1950

Catalogue nos. 1997-3247

Journal

SPECIES Accounts

Birds, Mammals, Reptile

2- MISCELLANEOUS Localities (Teton, Wyo.;  
Lander Co., Nevada; GILA Co., Ariz and  
California counties.

AUGUST 1950 - NOVEMBER 1951

Catalogue nos. 3248 - 3369

JOURNAL

SPECIES Account, Mammal

3- Peru, S.A.

DECEMBER 1951 - MAY 1952

Catalogue nos. 3370 - 3938

JOURNAL

SPECIES Accounts, Birds, Mammals, Reptiles

4- Miscellaneous Localities, Washington,  
New Mexico and California.

JULY 1952 - JUNE 1954

Catalogue nos. 3939 - 4036

Journal - Species Account, Bird





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JOURNAL

SPECIE ACCOUNTS

BIRDS

MAMMALS

REPTILES



# CATALOGUE





1950

3 1/2 km. S Villavieja, 1400 ft., Huila, Colombia  
June 7

skull immature:



Toxovorus

1997 ♂ Tyrannus melancholicus testes 2 mm. no fat. Toxovorus 38 g.

1998 ♂ Lizard (Cnemidophorus) snout-vent 61 mm. Testes 5 1/2 mm, yellow. Not saved.  
 not saved. Biting the side of or being bitten by 1998

1999 ♀ " " " " 57 mm. one ovum each ovary, yellow, 8 mm. diam. skull adult

June 8 2000 ♀ Tyrannus 40 gm. tiny follicles, 0.5 mm. No fat. No brood patch

2001 ♂ " 41 gm. Testes 12 x 4.5 mm. small ant. fat. skull adult

2002 ♀ Tyrannus melancholicus — tiny follicles. No fat. skull immature  
Villavieja, Huila  
June 9

2003 ♂ Molossus major major 102 x 41 x 9 x 12

2004 ♂ Spermophila minuta skull immature  
 6 gm. no brood patch. testes 4 mm, flabby.  
 no fat. ovaries messed up. nothing saved

2005 ♂? Columbigallina passerina 31 gm. no brood patch. ~~nothing saved~~ flabby.

2006 ♂ Crotophaga sulcirostris testes 4 mm. skull immature (J). nothing saved.

2007 ♀ " " tiny follicles only. " " (J). nothing saved

2008 ♀ Tyrannus melancholicus 45 gm. small ant. fat. Follicles small < 1 mm. skull adult

2009 ♂ Zenaidura (mourning dove) testes 13 mm. Nothing saved

2010 ♂ Colinus cristatus 117 g. testes 8 x 4.5.

2011 ♀? Colinus cristatus 84 g. gonad not found. surely not breeding.

June 10

2012 ♂ Forpus conspicillatus 23 gm testes 6 x 3. No brood patch

2013 ♀ " " 24 gm. Ovaries with no measurable follicles. No brood patch

2014 ♂ Spermophila minuta 7.5 gm. Testes 4 x 4. no brood patch. skull adult

17 1/2 km. SE Villavieja, Huila, Colombia

June 11

2015 ♀ Colinus cristatus 162 gm. egg in oviduct ready to lay; follicles 14, 8, 4 mm. Two or more ruptured follicles. no brood patch. ovaries not saved.  
 testes 4 x 2 mm. pale olive color. skull adult

2016 ♂ Tyrannus melancholicus 37 gm. testes 9 x 4 mm. no brood patch. no fat. some fat

2017 ♂ Columbigallina passerina 32 gm. ovaries with small follicles < 0.5 mm.

2018 ♀ Hylaptes 12 gm. skull adult. Brood patch de-feathered





1950

2

17 1/2 km SE Villavieja, Huila, Colombia

- 2019 ~~♂~~ *Hylophilus* Same bush as 2018.  
12.0 gm. ~~Testes~~ tiny, 2 mm. Skull immature
- 2020 ~~♂~~ *Columbigallina passerina* <sup>passerina</sup> ~~Playing tag with another.~~  
31 gm. Testes 8 x 5 mm. Skull immature.
- 2021 ♀ *Hylophilus* 8 gm. Skull immature. Small amt. fat. Ovary with many small follicles < 1/2 mm.

June 12

- 2022 ♂ *Tyrannus melancholicus* 37 gms. Brood patch dry & scaly. Testes 3 x 2, Pale olive color, no fat. new distal primaries coming in. Accessaries large
- 2023 ♂ *Sigmodon bogotensis* 267 x 108 x 33 x 19. Testes 16 x 9 mm. Skeleton only. Shot at night in
- 2024 ♂ alligator. Nose area 19 inches. 5 1/2 lbs. puddle in savanna
- 2025 ~~♂~~ *Sigmodon* 2 mandibles only from stomach of above.
- 2026 ♀ ? Size of vireo but less green, inconspicuous eye stripes, feet black, wing bars, lot plumage. Nothing saved. Many fairly large with numerous follicles up to 1 mm. Skull immature.
- 2027 ♀ *Columbigallina passerina* 32 gms. Brood patch defeathered. Ovary large, follic. up to 2 mm. no fat. Skull immature
- 2028 ♂ *Tyrannus melancholicus* 39 gm. Brood patch dry, scaly. Testes 3 x 1. Plumage not badly worn as in 2030. Skull imm.
- 2029 ♂ *Campylorhynchus* 55 gm. No brood patch. Testes 5 x 3 and 2 1/2 x 2 1/2. Ovary with many tiny follicles less than 1/2 mm.
- 2030 ♀ " 52 gms. Plumage much worn. Skull adult. Skin not saved

June 13

- 2031 ♂ *Sybillogus flavidus fuscatus* testes large, scrotal  
431 x 14 x 94 x 58 2.8 lbs. Brood patch defeathered.
- 2032 ♂? *Synallaxis albesens* 16 gms. Skull immature. Gonads not found. molting. Brood patch re-feathering
- 2033 ~~♂~~ " " 16 gms. Testes 1 mm. Skull more immature than 2032. Ovary atrophied, one ruptured follicle and one overrun 6 mm. diam.
- 2034 ♀ *Columbigallina passerina* 30 gms. No brood patch. Oviduct very large. Not molting. Skin not saved.
- 2035 ♀ *Forpus* 24 gms. No brood patch. Largest foll. less than 1 mm. Not brood patch. Testes 5 x 2 1/2 and 2 1/2 x 2 1/2. Int. smaller as in 2029. Nothing saved. Skull adult.
- 2036 ♂ *Campylorhynchus* Plumage much worn. Some very old tail feathers, some Ovary with 1 ruptured follicle, 1 or 2 corpora lutea. Oviduct large. Shot in small bush within 3 feet of nest, no eggs.
- 2037 ♀ *Synallaxis albesens* 18 gms. Brood patch de-feathered. Skull immature
- 2038 ♂ *Columbi* 39 g. Testes 8 x 4. No molt. Skin not saved.
- 2039 ♂ " 34 g. No brood patch. No molt. Testes 9 x 4. Skin not saved.
- 2040 ♂ " 34 g. No brood patch. No molt. Testes 10 x 5. worn. Skin not saved. Brood patch dry & scaly. Tail feathers somewhat.
- 2041 ♀ *Tyrannus* 44 g. Ovary small, no follic. larger than 1/2 mm. Skull adult.



1950

3

17 1/2 km SE Villaveja, Huila, ColombiaJune 142042 ♀ Canid *Desmognus thomasi*2043 ♀ *Synallaxis albescent*

2044 ♂ " "

2045 ♂ ?

2046 ♀ *Synallaxis albescent*2047 ♀ *Hylophilus*

loctating. Stomach with grasshoppers + bird  
 $36 \frac{1}{4} \times 11 \frac{7}{8} \times 5 \frac{3}{4} \times 2 \frac{5}{8}$  inches 12 lbs.  
 Ovary not ~~seen~~ ~~testes 2x1~~. Skull immature. Ovary tiny if present. Not definite.

15 gms. no brood patch. Shot with 2044. No song.

16 gms. no brood patch. Testes 2x1. Skull immat. testes 4x3 mm.

8 gms. Brood patch de-feathered. Skull not quite mature. Skull immature.

18 gms. no brood patch. Ovary large, numerous follicles up to  $2 \frac{1}{2}$  mm.

no brood patch. Skull immature. Being fed by parent when shot.  
 11 gms. Ovary small with tiny follicles.

June 152048 ♂ *Colinus*

139 gms. Looks adult. Testes 10x6. No skin. Skin bleated, not saved.

2049 ♂ *Forpus*

26 gms. Testes 2x3. Looks adult, some new blue rump feathers coming in.  
 Skull immature. Ovary large. Ovary without large follicles but possibly.

2050 ♀ *Synallaxis albescent*

18 gms. Brood patch de-feathered, wrinkled. Silent. corpora lutea.

2051 ♀ *Tyrannus melancholicus*

42 gms. Brood patch bare, scaly. Skull adult. Testes 8x5 (sec). Skull immature. no fat.

2052 ♂ *Synallaxis albescent*

16 gms. no brood patch. Gave alarm chirps.

2053 ♀ *Hylophilus*

11 gms. Brood patch de-feathered. No fat. Ovary large, follicles up to about 0.7 mm.

2054 ♂ *Colinus cristatus*

142 gms. Testes grey, 10x6

June 162055 ♀ *Zygodontomys lasiurus*

3 embryos at term. Brains 4 mm.

 $195 \times 87 \times 23 \times 16$  36 gms.2056 ♀ Mourning dove

mostly grey, no white under tail

Follicles up to 6 mm. Diam.

2057 ♂ " "

Testes large, about 9 mm. but shot up

2058 ♀ *Sybilinaea**floridanae purgatus*Lactating, no embryos  $7.5 \times 1.0 \times 3 \frac{1}{4} \times 2 \frac{1}{4}$  3 lbs.2059 ♂ *Forpus conspicillatus*26 gms. no brood patch. Testes  $6 \times 3 \frac{1}{2}$  and  $3 \frac{1}{2} \times 3$ .2060 ♀ *Tyrannus melancholicus*40 gms. Brood patch bare, scaly. Ovary with follicles  $< \frac{1}{2}$  mm. Skull immature.2061 ♂ *Halpate* small, bright rusty dove

Testes 8x4.

June 172062 ♀ *Zygodontomys lasiurus*

5 emb., 8 mm CR, absorbing. Much mammary tissue.

2063 ♂ " *Zygodontomys lasiurus*

Testes 11x7 mm.

 $230 \times 103 \times 24 \times 16$ 2064 ♂ " *Zygodontomys lasiurus*

Testes 10x6 mm.

 $202 \times 87 \times 24 \times 16$ 2065 ♂ " *Zygodontomys lasiurus*

Testes 8 mm. Hide not prime.

 $165 \times 72 \times 24 \times 14$



1950

4

17 1/2 km. SE Villaveja, Huila, Colombia

- 2066 ♀ *Zyrrallia albescens* Ovary large, 3 follicles 2 mm. diam.  
16 1/2 gms. Belly refeathering. Skull imm.  
2067 ♂ *Columbigallina passerina* Skull immature  
32 gms. Belly refeathering. Testis 9 x 4.  
2068 ♂ " " Skull very immature  
28 gms. " " Testis 3 1/2 x 2.  
Left testis 4 x 2, right 2 1/2 x 2 (right)  
2069 ♂ *Forpus conspicillatus* 23 gms. No brood patch.  
Egg in oviduct. Ovary with collapsed follicle and  
2070 ♀ " " 28 gms. No good brood patch. another 8 mm. diam.  
Left testis 4 x 2 1/2, right 3 x 3 right. Ovary not saved.  
2071 ♂ " " 24 gms. No brood patch

June 18

- 2072 ♂ *Oryzomys zygodontomys lasurus* 135 x 65 x 20 x 13 testis 5 mm.  
2073 ♂ *Heteromys anomalus* 237 x 126 x 34 x 15 testis 7 mm.  
2074 ♂ *Spermophila minuta* 7 gms. No brood patch. Testis 6 x 4 1/2. Skull adult.  
Skull apparently entirely immature, but shot through top of.  
2075 ♂ *Zyrrallia albescens* 16 1/2 gms. No brood patch. Testis 4 x 3. Looked like a thingy  
somewhat.  
2076 ♀ *Columbigallina passerina* 28 gms. Ovary large, largest follicle about 1 1/2 mm.  
Same as 2045  
2077 ♂ small rust crowned warbler 7 gms. Testis 4 mm. Nothing saved. Skull adult  
In moist seep at edge of savanna  
2078 ♂ small rusty or chocolate dove 43 gms. Testis 8 x 4. Nothing saved.  
Same as 2061  
2079 Frog. In moist seep at edge of savanna  
2080 " "  
2081 " "  
2082 " "  
2083 " "  
2084 " "  
2085 " "  
2086 " "  
2087 Iguana In grove of trees. Grubbed shot vireo when it fell.  
Left testis 5 x 3, right 4 x 3.  
2088 ♂ *Forpus* 27 gms. New tail feathers coming in. Skin not saved.  
2089 ♂ *Hylophilus* 13 gms. Brood patch defeathered. Testis 4 1/2 x 3 1/2. Some fat.  
Skull speckling obscured by intra-osseous bleeding. Cut edge of skull is  
definitely 2-layered, and parietals feel too hard for a juvenile.

This was probably parent feeding young (one of 2 present was making  
fledgling noises. Collected about 100 ft. from 2047 and 2053. This one grubbed by lizard  
as it fell.



1950

5

17 1/2 km SE Villavieja, Isula, Colombia

2090 ♀ Heterospizias meridionalis In stomach: grasshoppers + grass  
1 1/2 lbs. Follicles up to 2 mm.

June 19

2091 ♂ Oryz? Zygodontomys lasiurus 128 x 58 x 19 x 12. Testis 3 mm.

2092 ♂ Hylapobates

Verna juvenile.

Testes 1 1/2 mm. Skull almost entirely immature.  
12 gms. Brood patch slightly deflated.  
Stomach mostly grasshoppers and one mouse.

2093 ♀ Canid Duscigon thomasi 35 3/4 x 11 1/4 x 5 1/2 x 2 5/8 inches 9 1/2 lbs.

2094 ♂ Cnemidophorus

Testis 6 x 4 mm, yellow. Nose-ear 67 mm.

2095 Frog.

2096 ♂ Dyscolotis albescent

One of two. Skull quite immature.  
18 gms. No brood patch. Testis 2 x 1, about as in 2092.  
Skull looks adult.

2097 ♂ Forpus conspicillatus

26 gms. No brood patch. Left testis 3 x 2, rt. 2 1/2 x 2.

2098 ♂ Sporophila Spermophila <sup>minuta</sup>

8 gms. No brood patch. Testis 6 x 5 1/2. Skull adult.

June 20

NOTE  
NUMBER  
SEQUENCE

2099 ♀ Colinus cristatus

Ovary with 2 recently ruptured follicles and other follicles up to 8 mm.  
162 gms. No brood patch. Abdomen full of yolk (from shot).  
Oviduct large.

3000 ♂ "

"

"

140 gms. Testis 11 1/2 x 7 1/2. This and 2099 flushed from snail.  
no brood patch. same fresh.

3001 ♀ "

"

"

143 gms. From core of about 7. Follicles up to 2.2 mm.  
no brood patch.

3002 ♂ "

"

"

119 gms. " " " " " Testis 10 x 6.  
no brood patch.

3003 ? "

"

"

97 gms. " " " " " gonad shot, not found.  
Ovary large but no follicles, bigger than 1 mm. Some fat.

3004 ♀ Hylapobates flavipes

12 gms. Extensive brood patch. Skull adult.

3005 ♀ "

"

"

Some fat. Skull entirely immature. See species account.  
11 gms. No brood patch. Ovary small, no follicles > 1 mm.

June 21

3006 ♀ Micromycteris megalotis megalotis

21 shot under eaves of house in early evening.  
66 x 16 x 10 x 14.  
testis 2 mm.

3007 ♂

Glossophaga soricina soricina

60 x 8 x 10 x 14

testis 3 1/2

In room of house

3008 ♂

Glossophaga soricina soricina

63 x 8 x 10 x 15

testis 2 mm

In room of house

3009 ♂

Glossophaga soricina soricina

63 x 7 x 10 x 14

testis 8 x 4

9 gms

8 gms

3010 ♂

Molossid Molossus major major

[80] x [11] x 9 x 13

16 gms.

3011 ♀

Hylapobates flavipes

Some fat. Skull immature, about as in 2092.  
12 gms. No brood patch, Ovary tiny, no measurable follicles.

3012 ♀

"

"

Some fat. Skull immature, same as 2092.  
11 1/2 gms. No brood patch. Ovary small, no measurable follicles.  
Feeding in same tree with 3011.





1950

17 1/2 km SE Villavieja, Huila, ColombiaJune 22

- 3013 ♀ Bat Glossophaga soricina soricina Hanging on porch 8 15 No anal, 59 x 16 x 10 x 22 7 1/2 gms.  
Hanging on porch
- 3014 ♂ Bat Micromycteris megalotis megalotis 59 x 16 x 10 x 22 5 1/2 gms.  
testis 6 mm.
- 3015 ♂ Phyllotomus hastatus panamensis 134 x 25 x 24 x 33 126 gms  
many sprouting body feathers + primaries - Skin not saved.
- 3016 ♂ Forkus One of a pair ♂ & ♀. Looks adult. Right testis 3 x 3, Left testis 4 x 3; 24 gms  
Skull totally immature.
- 3017 ♂ Hylophylus flavipes Testis 1.3 mm. No brood patch. 12 gms.  
Skull entirely adult
- 3018 ♂ " " 12 1/2 gms. Singing IIII IIII IIII. Same tree as 3019 + 3020. Testis 4 x 3  
flatly
- 3019 ♂ " " 12 gms. Testis 1.2 mm. Skull totally immature.  
many sprouting body feathers. Nothing saved.
- 3020 ♂ " " 11 1/2 gms. Testis 1 mm. Skull totally immature
- 3021 ♂ Colinus cristatus 116 gms. In company of 3+. Testis 7 x 5, dark.

June 23

- 3022 ♂ Synallaxis albescent Skull immature  
16 gms. No brood patch. No sound. Testis 7 x 5
- 3023 ♀ Todirostrum cinereum Follicles 2 1/2 mm.  
Duck-billed grnat-catcher - new 7 gms. Skull immature.
- 3024 ♂ Sporophila Plumage adult, no molt. Skin not saved  
7 1/2 gms. testis 6 x 5. Skull totally adult.
- 3025 ♂ Synallaxis albescent Skull immature, about as in 2092.  
Same as 2045 15 gms. No brood patch. Testis 2 x 1.  
Ovary large, 1 collapsed follicle and 1 foll. 4 mm. Skull complete.
- 3026 ♀ 8 gms. No molt. Brood patch flattened. Oviduct large. Nothing saved.  
Skull completely adult. Nothing saved.
- 3027 ♂ " 7 gms. No molt. Testis 4 x 5. Collected same shot as 3026.  
No molt. Oviduct large. Ovary with 3 recently ruptured follicles,  
another follicle 5 mm. Saved ovary + head.
- 3028 ♀ Crotophaga ani 106 gms. Iris dark. Tarsus 37. Brood patch wrinkled.  
Egg in oviduct, ovary with 3 recently ruptured follicles. Saved head.
- 3029 ♀ " " 104 " " " 38. Brood patch wrinkled.  
Testis 5 1/2 x 4. Skull immature. No skin
- 3030 ♂ Synallaxis 16 1/2 gms. No brood patch, no molt. With  
3031 when shot. Feigned injury.
- 3031 ♂ Synallaxis albescent Skull immature. Immature  
juv. 16 gms. No brood patch. Testis 1.2 x 1. Left testis black.

June 24

- 3032 ♂ Crotophaga ani Testis 11 x 6 1/2. Iris dark. Tarsus 40. Saved head + testis  
119 gms. Many sprouting body feathers + a few primaries.
- 3033 ♀ " Ovary with follicles up to 2 1/2 mm. Oviduct not large. Iris dark,  
104. Many sprouting body feathers, a few primaries + tail. Saved head. Tarsus 36.
- 3034 ♀ " Oviduct small. Iris dark. Saved skull + ovary  
102 g. Molt as in 3033. Ovary with follicles up to 2 mm.
- 3035 ♀ Colinus [140g. +] Follicles up to 2.8 mm. No molt. Body shot,  
no skin.



1950

7

17½ km SE Villavieja, Huila, Colombia

- 3036 ♂ Colinus cristatus 149 gms. Testes  $9 \times 5$ , grey.  
 3037 ♂ " " 151 gms. Testes  $8\frac{1}{2} \times 5$ , grey. Bird fat.  
 3038 ♂ Cnemidophorus 50 mm. nose-anna. testes  $4 \times 2\frac{1}{2}$   
 3039 ♀ " 49 follicles up to 2 mm.  
 3040 ♀ " 48 " " " 1.8  
 3041 ♂ " 50 testes  $5 \times 3$ .  
 3042 ♂ " 47 "  $3\frac{1}{2} \times 2$ .  
 3043 ♂ " 72 "  $5\frac{1}{2} \times 4$ .  
 3044 ♀ Crotophaga ani 96 gms. - Brood patch defatted, wrinkled. Same flock as 3028, 3029. Many sprouting body feathers and a few tail + primaries. No skin.  
 3045 ♂ Forpus 26 g. Part of large flock. Testes  $3\frac{1}{2} \times 3$ . Many sprouting body feathers. No skin.  
 3046 ♀ " 25 g. Part of large flock. No brood patch. Ovary with no measurable follicles.

June 25

3047 Toad

3048 ♂ Mus musculus

in house at night

161 x 85 x 17 x 14 testes 6 mm.

3049 ♀ Mus musculus

in house. no embryos. much mammary tissue

146 x 76 x 16 x 13

no emb. Ovaries simple

3050 ♀ Bat Glossophaga longirostris longirostris

76 x 7 x 13 x 16

with lot of fat 22 mm. C.R.

3051 ♀ " Glossophaga longirostris longirostris

77 x 10 x 13 x 16

not preg. This and 3050, 3051, shot in shallow

3052 ♀ " Glossophaga longirostris longirostris

69 x 10 x 12 x 15 case in dry wash

7½ km. E Villavieja, Huila, ColombiaJune 263053 ♂ Marmosa mitisTestes 10 mm. Shot in bushy tree at night.  
294 x 170 x 20 x 23 49 gmsJune 273054 ♀ Tyrannus melancholicussprouting body, primary, and tail feathers. no skin  
39 gms. Ovary fairly large, follic. up to 1 mm. adult.3055 ♂ CnemidophorusShedding. Nose-anna 84 mm. Gonads not removed (all in formalin)  
Testes  $7 \times 4\frac{1}{2}$ .

3056 ♂ " "

Nose annus 61 mm. Testes  $6 \times 4$ .

3057 ♂ " "

" " 57 " . Testes  $5 \times 3$ . all in formalin.

3058

Crotophaga sulcirostrisTestes  $8 \times 6$ . Nothing saved.  
Brood patch defatted. a few sprouting body feathers.



P. PEARSON

1950

7 1/2 km E Villavieja, Huila, ColombiaJune 28

- 2 resorbing fetuses, 1 of them calcified  
 3059 ♀ Sylviogus flouidamus purgatus 430 x 23 x 91 x 60 3 lbs.  
 many sprouting body feathers + primaries.  
 3060 ♀ Tyrannus melancholicus Oviduct fairly large, many large, follicles up to 3 1/2 mm.  
 Broad patch of feathers, scaly.  
 Skull entirely adult. Skin not saved.

June 29

- testis saved in Bouin's  
 3061 ♂ Phyllotomid Ionatia amblyotis 95 x 22 x 17 x 38 testis 8 x 5. 37 gm  
 3062 ♂ Ionatia amblyotis 96 x 19 x 17 x 38 testis 8 x 5 38 gm  
 3063 ♂ Ionatia amblyotis 103 x 21 x 17 x 36 40 gm  
 Fruit in stomach  
 3064 ♂ Ionatia amblyotis 104 x 20 x 16 x 36 testis 6 x 4 34 g.  
 3065 ♂ Ionatia amblyotis 84 x 19 x 15 x 34 testis 5 x 3 1/2 24 g.  
 3066 ♂ Ionatia amblyotis 111 x 21 x 17 x 36 testis 8 x 5 35 g.  
 3067 ♂ Ionatia amblyotis 109 x 22 x 17 x 37 testis 7 x 5 39 g.  
 all in formalin.  
 3068 ♂ Cremidophorus nose-anus 70 mm. Testis 3 x 3 (nuclei cut by shot)  
 3069 ♀ " 54. Follicles up to 1 1/2 mm. all in formalin  
 3070 ♂ " 44 Testis 2 mm. all in formalin.  
 3071 ♂ Coriostreum leucoglyps in formalin.

June 30

- no emb.,  
 3072 ♀ Bat Micromycteris megalotis megalotis 62 x 14 x 9 x 22 6 gms  
 no emb.  
 3073 ♀ Micromycteris megalotis megalotis 62 x 16 x 10 x 22 6 gms  
 3074 ♂ Micromycteris megalotis megalotis 59 x 11 x 9 x 21 5 1/2 g.  
 testis 7 x 6  
 3075 ♂ Glossophaga longirostris longirostris 62 x 0 x 12 x 16 16 gms.  
 testis 5 1/2 x 4 1/2  
 3076 ♂ Glossophaga longirostris longirostris 68 x 0 x 12 x 16 14 gms  
 testis 8 x 6 1/2.  
 3077 ♂ Glossophaga longirostris longirostris 68 x 0 x 13 x 16 15 1/2 gms.  
 fetus CR 30 mm. [discarded 2 other late preg 89]  
 3078 ♀ Glossophaga longirostris longirostris 70 x 0 x 12 x 16 19 1/2 gms  
 nursing 3080  
 3079 ♀ Glossophaga longirostris longirostris 68 x 0 x 12 x 16 16 gms  
 nursing 3079.  
 3080 ♀ Glossophaga longirostris longirostris 41 x 0 x 9 x 9 4 gms.

all above caught in culverts under road between Villavieja and  
 Camp. Lajas.



P. PEARSON

1950

July 1

4 km. E Villavieja, Huila, Colombia

- 3081 ♂ Bat Glossophaga longirostris longirostris testes 7x6. In wood culvert  
62x0x12x15 14gms.  
no emb. In wood culvert
- 3082 ♀ Glossophaga longirostris longirostris 66x0x13x15 13gms  
no emb. In wood culvert.
- 3083 ♀ Glossophaga longirostris longirostris 64x0x12x16 12gms  
Feet + eyelids raspberry pink, bill cadmium yellow  
profoundly, blending to apple green, eye brown.  
Ovary with follicles up to 6mm.
- 3084 ♀ Araucaria ? cajana

2 1/2 km. E Villavieja, Huila, Colombia

- 3085 ♂ Cnemidophorus all into formalin  
nose-anns 35mm. Testis 1mm
- 3086 ? " " 38 all into formalin
- 3087 Frog (caught June 25 17 1/2 km. SE Villavieja but not catalogued until today)  
longirostris In culvert until 3089-3091
- 3088 ♀ Bat Glossophaga longirostris Fetus CR 21mm. 72x0x10x16 16gms.  
no emb.
- 3089 ♀ Glossophaga longirostris longirostris 65x0x12x15 14gms  
fetus CR 27mm.
- 3090 ♀ Glossophaga longirostris longirostris 69x0x12x16 19gms.  
testis 6x5
- 3091 ♂ Glossophaga longirostris longirostris 67x0x12x16 13 1/2 gm
- 3092 Cnemidophorus nose-anns 41mm.

July 2

- 3093 ♂ Cnemidophorus all in formalin  
nose-anns 72mm. Testis 5 1/2 x 3 1/2
- 3094 ♂ " " 62 all in formalin  
Testis 5 x 3
- 3095 ♂ " " 77 all in formalin  
Testis 6 x 4
- 3096 ♂ Poliophtila Left testis fleshy, about 6mm. rt. 2x2.  
sprouting a few tail and body feathers.  
6gms. Skull shot. Nothing saved.
- 3097 ♀ Same as 2045 nothing saved  
8gms. No molt. Skull adult.  
Ovary very large with many follicles up to 1.8mm.  
Oviduct large. This species very abundant here and conspicuous  
because of much noise: trrrp, trrrp.
- 3098 ♂ Tyrannus melan. 39gms. sprouting secondaries, tail coverts,  
and many body feathers. Skull adult.  
Testis 11x5. No skin.
- 3099 ♀ Cnemidophorus Follicles up to 2mm. and  
nose-anns 61mm. probably corpora lutea.
- 3100 ♀ " " 64 Large amt. yolk in body cavity.  
probably egg broken by shot. Follicles  
up to 2mm.
- 3101 ♀ " " 61 1 ovum each oviduct 14x9. Each ovary  
with 1 corpus + follicles up to 2mm. all in formal.
- 3102 ♂ " " 53 testis 4x2 1/2. all in formal.
- 3103 ♀ " " 66 Egg in each oviduct 16x9. Each ovary with  
corpora lutea and follicles up to 3mm.  
all in formalin





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- 3104 ♂ Colinus Testes 9x6. Many sprouting tail coverts and 138 gms. body feathers. No skin
- 3105 ♀ Bat Glossophaga longirostris longirostris Sato/preg. Fetua 28 CR; forearm 16 mm. In road culvert. 71x0x12x15 18 gms.
- 3106 ♂ Glossophaga longirostris " " " Testes 8x6 64x0x12x16 14½ gms.
- 3107 ♂ Glossophaga longirostris longirostris " " " Testes 6½x5½ 64x0x12x15 14 gms.

July 3

- 3108 ♂ Hylophilus In same bush with 3109 + 3110. Skull adult 12½ gms. No molt. No skin. Testes 5x4. No brood patch. Testes 2x1½. Skull totally immature
- 3109 ♂ " 12½ gms. Numerous sprouting body feathers. No skin. Ovary small, no follicles visible. No skin
- 3110 ♀ " 11½ gms. Sprouting body feathers. Skull totally immature
- 3111 ♂ Zonotrichia albicollis Same terrace nest as 3068 - 3067. Testes 7x4½ 94x23x16x33 32 gms

July 5

- 3112 ♂ Colinus cristatus 108 gms. Testes 4½x2, black.
- 3113 ♂ " " 14½ gms. Testes 10x5½. Fat. Skull entirely adult.
- 3114 ♂ Tyrannus melancholicus 35 gms. Brood patch dry, scaly. Testes 12x5
- 3115 ♂ Coryphospingus pileatus 14 gms. Skull adult. Testes 6x5. Skin only
- 3116 ♂ " " 16 gms. Skull adult. Testes 4½x3½. " "
- 3117 ♂ " " 16 gms. Skull imm. Testes 2x1½ " " Ovary with small follic.
- 3118 ♀ " " 17½ gms. Skull more immature than 3117. " " Ovary large, follicles up to 1 mm.
- 3119 ♀ " " 17 gms. Skull adult. No brood patch. Skin only.

July 6

- 3120 ♀ Oryz. Zygodontomys lasiurus Uterus very stout (estrous?) 149x69x21x13 17 gms.
- 3121 ♀ Canid. Desicyon thomasi 34¼x10¼x5½x2¾ 9¾ lbs. Uterus oviduct, not preg; no large follicles. Stomach with fruit, grasshoppers, one large of Crematoph. Skull totally immature. Skin only
- 3122 ♂ Coryphospingus pileatus 25 g. No brood patch. Testes 1½x1 mm. No follicles visible. Nothing
- 3123 ♀ " 19 gms. A fledgling, younger than 3122. saved.

July 7, Villavieja

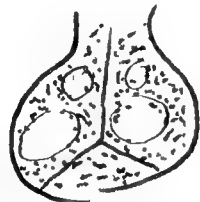
- 3124 ♀ Phyllotomus hastatus panamensis no emb. 118x21x22x29 65g
- 3125 ♂ " " " testis 7½x5, follic. 137x23x22x34 119 gms
- 3126 ♀ " " " no emb. 136x22x23x32 88g



1950

1 km. E Villavieja, 1400 ft., Huila, Colombia3127 ♂ Tyrannus melan.Testis  $6\frac{1}{2} \times 4$ . No molt. Skull adult.  
38 gms. Brood patch dry scaly. No skin

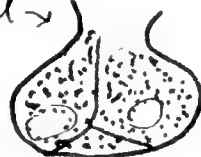
3128 Frog.

3129 ♂ Tyrannus melan.no molt. Skull adult. No skin  
41 gm. Brood patch dry, scaly. Testis  $10 \times 4$ .  
Testis  $2\frac{1}{2} \times 1$  mm. Testis not saved.  
27 gm. Skull immature →3130 ♂ Myiarchus apicalis16 km. NE Villavieja, 1600 ft., Huila, ColombiaJuly 8.3131 ♂ Todirostrum cinereum  
Duck-billed vireoTestis  $5 \times 3$  Skull immature.July 10.3132 ♂ Coryphospingus pileatusSkull immature (about  $\frac{1}{2}$  mature)17 gms. Testis  $2 \times 1\frac{1}{2}$  not saved.

3133 ♂ "

crimson feathers, rest just shoots.  
Nothing saved.19 gms. crown just sprouting. Only two  
Testis  $3\frac{1}{2} \times 2$  mm. Skull adult.

3134 ♀ "

sprouting feathers everywhere. ovary fairly large  
with many follicles, none larger than  $\frac{1}{2}$  mm.  
17 gms. nothing saved. Skull →3135 ♀ Crotophaga sulcirostris76 gms. No molt except one  
sprouting tail feather. Egg in oviduct.3136 ♂ Coryphospingus pileatusTestis  $5 \times 4$ . Skull slightly more mature  
than 3134. Testis not saved.

3137 ♀ "

Same black as 3136 and 3138. Skull as 3136

3138 ♀ ?

16 gms. Ovary fairly large with follic. up to 1 mm.  
molt everywhere. Sperm not found. nothing saved.  
16 gms. Skull totally immature.July 123139 ♂ Marmosa mitistestis  $11 \times 6$   
 $306 \times 182 \times 23 \times 26$ 

3140 mouse

(skull only in cat? dropping)

July 133141 ♀ Marmosa mitis

no emb.

 $270 \times 147 \times 17 \times 25$ 3142 ♂ Marmosa mitis

testis 4 mm.

 $227 \times 129 \times 16 \times 20$ 3143 ♀ Marmosa mitis

no emb.

 $217 \times 122 \times 17 \times 19$ 3144 ♂ Ang. zygodontomys lasiurus

skull only. Testis 11 mm.

[200] x [88] ante


3145 ♂ Angitia Rhogeessa tumidaFlying early among trees over tall weeds.  
 $75 \times 30 \times 6 \times 13$



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5 km. N Villavieja, 1400 ft., Huila, Colombia

- July 15
- 3146 ♂ ~~Spermophila~~ Spermophila minuta —? Testis  $4\frac{1}{2} \times 4$ . Skull adult. No brood patch  
no brood patch
- 3147 ♀ " " 7 gms. No follicles matb. Skull immature → 
- 3148 ♂ " " skull adult. No brood patch
- 3149 ♂ " " 7 gms. Testis  $6 \times 5$ , flabbier than 3146. Skull adult
- 3150 ♀ " " 7 gms. Follicles less than  $\frac{1}{2}$  mm. Skull adult

July 16

- 3151 ♀ Onychomys zygodontomys lasiurus Lactating, no emb. 206 x 94 x 23 x 15 42 gms
- 3152 ♀ ~~Spermophila~~ Spermophila nigricollis? skull adult 9 gms. No brood patch. Follicles up to 1 mm.
- 3153 ♀ Spermophila minuta 7½ No brood patch. Skull adult. " " " "
- 3154 ♀ Spermophila minuta 7½ No brood patch. Follicles up to 1 mm. Skull adult.
- 3155 Crotaphaga sulcirostris 62 gm. a few sprouting primaries + body feathers. Broods not found. Nothing saved. Same flock as 3155. Nothing saved.
- 3156 ♀ " " 59 " Follicles up to 3 mm. No molt.
- 3157 ♀ Molossus major major No emb. 96 x 35 x 9 x 13 12 g.
- 3158 ♀ Molossus major major no emb. 97 x 33 x 9 x 13 11 g.
- 3159 ♂ Molossus major major testis 3 mm. 94 x 35 x 9 x 13 9 g.
- 3160 Night lizard In brick culvert under RR.
- 3161 Bark lizard In rocks in badlands
- 3162 Frog caught by Smith at last camp July 10, not entered until here.
- 3163 Bark lizard " " " " " " " " " " " "
- 3164 ♂ Bat. Glossophaga longirostris longirostris 68 x 0 x 12 x 15 15 gms. Skull adult
- 3165 ♂ Crotaphaga ann 122 gms. Same flock with 3166, 3167. Testis  $7 \times 5$
- 3166 ♀ " " 92 gms. Skull immature. No follicles. Brood patch scaly.
- 3167 ♀ " " 99 gms. Sprouting primaries, tail, & body feathers. Ovary with follicles up to 2 mm. No skin.

July 17

- 3168 ♂ Stelgidopteryx 17 gm. Testis 2 mm. No brood patch. Skull adult
- 3169 ♂ canid. Desigyon thous 35½ x 11¾ x 5¼ x 2¾ inches. 10 lbs + Testes 21 mm.



1950

13

5 km N. Villavieja, 1400 ft., Itiula, Colombia3170 *Lindoproctus* Many sprouting body feathers. Testes 2 mm.July 183171 ♂ *Campylorhynchus*Skull immature. Testes  $3\frac{1}{2} \times 2$ .

56 gms.

3172 ? "

In same group with 3171, 3173, 3174

Testes  $3\frac{1}{2} \times 2$ . Skull adult.

3173 ♂ "

59 gms. Feathers worn.

3174 ♀ "

Tail Ovary with no follicles  
47 gms. Feathers worn. Many sprouting  
body feathers and primaries. Skull ??3175 ♂ *Crotophaga ani* 88 gms. Testis  $3 \times 1\frac{1}{2}$  mm. Sprouting primaries and many  
body feathers. No skinJuly 203176 ♀ Vampire *Desmodus rotundus*

no emb.

84 x 0 x 18 x 20 42 gms

3177 ♀ " *Desmodus rotundus*

1 fetus CR 38 mm. 43 gms

89 x 0 x 17 x 20

3178 ♀ " *Desmodus rotundus*

no emb.

86 x 0 x 18 x 20 32 gms

3179 ♀ *Philander* *Caluromys lanata*

680 x 405 x 43 x 37

3180 ♂ " *Caluromys lanata*

Pouch young of 3179

205 x 105 x 18 x 15

32 gms

3181 ♂ Bat *Micronycteris megalotis megalotis*Testis  $3\frac{1}{2}$  mm. This to 3188 in "cave" under  
roots of tree. 6 gms.

58 x 15 x 11 x 22

3182 ♀ " *Micronycteris megalotis megalotis*

Possibly early preg.

63 x 13 x 10 x 21

8 gms

3183 ♀ " *Micronycteris megalotis megalotis*

1 fetus 4 mm. CR

59 x 16 x 9 x 21

6 gms

3184 ♂ Bat *Glossophaga soricina soricina*

Testis 3 mm.

61 x 9 x 10 x 13

9 gms.

3185 ♂ " *Glossophaga soricina soricina*

Testis 4 mm

60 x 9 x 10 x 14

11 gms.

3186 ♂ " *Glossophaga soricina soricina*Testis  $3\frac{1}{2}$  mm.

60 x 8 x 9 x 14

10 gms

3187 ♂ " *Glossophaga soricina soricina*

Testis 4 mm

61 x 8 x 9 x 13

10 gms

3188 ♂ " *Glossophaga soricina soricina*Testis  $3\frac{1}{2}$  mm.

59 x 8 x 10 x 14

9 gms

July 213189 ♂ Bat *Carollia*

in steel trap baited with banana

71 x 11 x 11 x 21 Testis 7 mm 21 gms

Testis 11 mm.

3190 ♂ *Marmosa mitis*

306 x 170 x 21 x 23 65 gms.





1950

5 km N. Villavieja, Iquitos, ColombiaJuly 223191 ♂ Bat Carolliain mousetrap - Testis  $8\frac{1}{2}$  mm.

70 x 6 x 14 x 21

21 gm.

3192 ♂ " Carollia

in mousetrap. Testis 4 mm.

70 x 14 x 13 x 20

16 gm.

3193 ♂ Stalagidopteryx14 gm. Skull adult. Testis  $1\frac{1}{2}$  x 1.

megalothis same root-cave as 3181-3188 and 3195-3197.

3194 ♀ Bat Micromycterus megalotis ♂

7g. 65 x 14 x 10 x 22 Preg., tiny embryos

3195 ♂ Bat Glossophaga soricina soricina 10g. 62 x 8 x 10 x 15 testis  $3\frac{1}{2}$  mm.3196 ♂ " Glossophaga soricina soricina 10g. 63 x 8 x 11 x 15 Testis 5 mm.3197 ♂ " Glossophaga soricina soricina 10g. 65 x 10 x 11 x 14 testis 5 mm. (sued)

sprouting a few primaries &amp; wing coverts, several tail, and many body feathers. Same flock as 3199

3198 ♂ Oryzomys ani

101g. testis 3 x 2.

3199 ♂ " "

108g. testis 7 x 4. No molt.

July 233200 ♂ Dryobates flandrianus purgatus

no emb. Testis 21 x 12

365 x 17 x 86 x 55

2  $\frac{1}{2}$  lbs

in mousetrap. no emb. Barren in stomach

3201 ♀ Bat Carollia

67 x 9 x 13 x 21

19 gm.

much mammary tissue. no emb. Placental scars

3202 ♀ Oryzomys zygodontomys losium

200 x 95 x 24 x 17

41 gm.

testis 7 x 6

3203 ♂ vampire Desmodus rotundus

83 x 0 x 18 x 16

30 gm

no emb. saved UG

3204 ♀ Marmosa mitis

245 x 142 x 17 x 21

25 gm.

testis 10 x 7

3205 ♂ Marmosa mitis

274 x 163 x 20 x 23

33 gm.

testis 12 x 12

3206 ♂ Didelphys marsupialis

780 x 420 x 61 x 51

2  $\frac{1}{4}$  lbs.July 243207 ♀ Marmosa

body eaten, not saved. not preg.

Villavieja, 1400 ft.July 25 [should be 24]3208 ♀ Bat Myotis nigricans nigricans

in station during day, flying, preg &amp; swelling 5m.

82 x 38 x 72 x 12

4 gm.

Cuerpo de TulunIquitos, ColombiaJuly 273209 ♂ Mazama americana37 x 3  $\frac{1}{2}$  x 11 x 3  $\frac{3}{4}$  inches

late preg, fetus 33 mm CR

3210 ♀ Bat Phyllostomus discolor

110 x 22 x 16 x 22 49 gm bat

testis 5 mm.

3211 ♂ " Phyllostomus discolor

109 x 18 x 17 x 23 40 bat



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15

- 3212 ♀ Phyllostomus discolor  
 3213 ♀ Phyllostomus discolor  
 3214 ♀ Phyllostomus discolor  
 3215 ♀ Phyllostomus discolor

fat, lactating.  
 109 x 17 x 16 x 24 40gms  
 early preg. or recently parturient.  
 111 x 21 x 15 x 23 43gms.  
 no emb.  
 114 x 16 x 14 x 23 41gms fat  
 no emb.  
 101 x 16 x 15 x 23 33gms.

July 28

- 3216 ♂ Phyllostomus hastatus panamensis

- 3217 ♀ Bat Glossophaga soricina soricina

- 3218 ♀ " Glossophaga soricina soricina

- 3219 ♂ Bat Phyllostomus discolor

obs at night. Testis 6mm.  
 136 x 21 x 22 x 30 25gms  
 lactating. hanging next to 3218 in day  
 67 x 9 x 9 x 14 11gms.  
 milk in stomach  
 65 x 8 x 9 x 15 10gms.  
 separate cluster from 3210-3215. Testis 13mm.  
 110 x 14 x 18 x 24 46gms.  
 shot in morning about 9 am but stomach and  
 intestines empty clear night.

- 3220 ♀ " Phyllostomus discolor

- 3221 ♀ " Phyllostomus discolor

- 3222 ♂ Bat Artibeus jamaicensis jamaicensis

- 3223 ♀ Bat owl Steatotis caripensis

- 3224 ♀ Bat Peropteryx kappleri

- 3225 ♂ " Peropteryx kappleri

- 3226 ♀ " Peropteryx kappleri

- 3227 ♂ " Peropteryx kappleri

lactating, no emb.  
 99 x 17 x 16 x 23 33gms.  
 lactating, no emb.  
 104 x 17 x 16 x 21 36gms  
 on owl cage in afternoon Testis 11mm.  
 86 x 10 x 14 x 22 43gms  
 1 fruit stone (like cherry pit)  
 in stomach  
 Follicles up to 4mm.  
 In small cage with 3225-3227 and Pregnant.  
 81 x 20 x 11 x 18 10g fetus 12mm CR  
 testis 3mm.  
 69 x 18 x 11 x 16 8gm.  
 fetus 9mm CR  
 73 x 20 x 12 x 16 10gm.  
 testis 2 1/2 mm  
 68 x 17 x 12 x 16 8gm

July 29

- 3228 ♂ Phyllostomus

- 3229 ♂ Bat Peropteryx kappleri

- 3230 ♀ " Peropteryx kappleri

- 3231 ♂ " Peropteryx kappleri

- 3232 ♂ " Peropteryx kappleri

- 3233 ♀ Bat Phyllostomus discolor

- 3234 ♂ " Phyllostomus discolor

- 3235 ♀ " Phyllostomus discolor

- 3236 ♀ " Phyllostomus discolor

uterus immature  
 123 x 21 x 21 x 28 77gms  
 testis 3mm.  
 63 x 16 x 10 x 15 6 1/2 g.  
 fetus 13mm CR  
 80 x 16 x 11 x 17 10g  
 testis 3 1/2 mm.  
 71 x 15 x 10 x 16 8g.  
 testis 3mm.  
 73 x 15 x 11 x 16 7gm.  
 lactating  
 106 x 18 x 15 x 22 42gms.  
 testis 4mm.  
 106 x 18 x 18 x 23 41 "  
 much mammary tissue.  
 107 x 14 x 15 x 24 41 "  
 not preg. much fat.  
 107 x 17 x 16 x 23 38 "



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16

3237	♂	Bat	<u>Phyllostomus discolor</u>	testis 13 mm. 110 x 18 x 15 x 23	45g
3238	♂	"	<u>Phyllostomus discolor</u>	testis 5 mm. 99 x 14 x 16 x 24	37g.
3239	♂	"	<u>Phyllostomus discolor</u>	testis 12 mm. 106 x 15 x 16 x 23	37g
3240	♂	"	<u>Phyllostomus discolor</u>	testis 14 mm. 110 x 14 x 17 x 22	45 gm
3241	♂	"	<u>Phyllostomus discolor</u>	testis 12 mm. 107 x 17 x 17 x 21	42 gm
3242	♂	SKELTON ONLY	<u>Phyllostomus discolor</u>	testis 3½ mm. 93 x 14 x 15 x 21	31 gm

Bogotá, 8500ft., Cundinamarca, Colombia

August 5

3243	♂	<u>Oryzomys (microoryzomys) dedi</u>	testis 6 mm. 175 x 102 x 23 x 15	18 gms.
3244	♂	<u>Oryzomys (microoryzomys) dedi</u>	testis 5½ mm. 169 x 97 x 22 x 14	13 gms.
3245	♂	<u>Thomasomys nigriceps</u>	testis 20 mm. 240 x 136 x 27 x 22	51 gm.
3246	♀	<u>Thomasomys nigriceps</u>	no emb. 242 x 127 x 26 x 21	40 gm

Paramo de Guerrero, 9800ft., Cundinamarca

August 6

3244	Frog.
3245	Frog.
3246	Lizard
3247	"



# JOURNAL





1950

JournalBogota, Colombia

June 2 Left Miami via Avianca at 12:15 a.m. (18 hrs. late). Arrived Barranquilla 6<sup>30</sup> a.m. and left 7:15. Route follows up the Magdalena River, the valley of which is very broad and flat for most of the way. Low snow-covered Santa Marta range to the east. The flat valley looked very much flooded, by no means all jungle - much scrub and grass? Arrived Bogota 9:15 a.m. Airport building smells like Peruvian railroad ~~buildings~~ stations etc - a spicy smell perhaps from cigarettes. Nearly 2 hours to get thru customs - and then he only took a quick look, - missed the shotgun, laughed at the moustraps. Checked in with Ja Prefecture at 2 p.m. (after his siesta), then went out to the university to see Sarmento. The university consists of impressive buildings, many unfinished, and practically no students visible. Met Alberto Sarmento there but we had to drive back <sup>\*</sup>into town to the new office of Roberto Sarmento-Soto. Kindly received by both. My trunk has not yet arrived and due to exceedingly heavy rains over the past few months (= washed out roads etc) may be some time getting up here from Buenaventura.

Alberto - Sarmento mentioned a mine tunnel near Villavicencio full of bats. <sup>Mina ~~Sancti Spiritus~~ Guatiquia. See Mrs. Lopez at Hotel Meta in Villavicencio. about 5 km. from town and across river, near Cerro Redondo</sup>

Bogota has much of the bustle, dirt, silly stores etc of a typical South American city but none of the picturesque charm of Peruvian towns. Lacks the broad promenades, parks etc of Havana & Lima. Many gringo-appearing people but all talking Spanish. I walk the streets almost unnoticed - and I walked many miles of them today. No tourists



P. PEARSON

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June 3 Went back to the University to converse more with Alberto Sarmento. Then met Degand nearby in the Instituto de Ciencias Naturales. He gave me some reprints and I promised him a series of cactus wrens. He says Herakleus is now up in the Atreus Valley. More shopping in the afternoon.

Met Borrero then went to R. Sarmento's for supper. He tells of caves (with guano?) near Chapporal. Both Degand + Borrero think the Paramo de Huasca could be easily visited from here by car.

June 4 Walked up to the Funicular in AM but it wasn't running. Explored various slopes south of the bottom of the Funicular. One ungrazed slope was in heavy thick grass with occasional shrubs and ~~small~~ small pines + eucalyptus. The grass was thick as to make gorgeous Microtus habitat but found no mouse signs. Another slope was pure Eucalyptus (a few in bloom), and nearby (nearest the Funicular) a slope of "chapporal" consisting of a mixture of coriaceous herbs about 2 feet high, broken, blackberry, and small succulents, all growing on light duffy soil. Reminded me of Limban, which is something like same attitude on east side of Andes in Peru.

at 6 p.m. went bat hunting on the University grounds. Saw + heard barn owl, but no bats. Was approaching the large, uncompleted Edificio Quimico thinking to look through its cavernous rooms for bats when I heard someone inside. Thinking it might be a burglar I backed up



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against an outside wall and awaited developments. The "burglar" soon stuck his head out an opening about 20 feet from me and looked around and saw me in the shadows. He was obviously puzzled, said nothing, and soon disappeared whistling a song in what I took to be nervous nonchalance. A minute later there was some excited shouting in the building and I suddenly found two goindas armed with 4-foot iron pipes bearing down on me, one from each direction. It was an awkward situation and did not improve until they had talked themselves down to 1800 words per minute and I finally realized they were watchmen.

Rain most all afternoon. This makes, they say, over 100 days straight of rain.

June 5 Much running around shopping, exchanging dollars, commuting to University, etc.

June 6 Left 7 a.m. for Villavieja by train. Arrived after dark. Station illuminated by 3 candles. Savage not present, no one knew where he was. Spent the night with the Carlos Sanchez family.

June 7 No one seemed to know where Savage had gone although they thought he was about half way to Meria. Started out in that direction in the village armibus but came to a river 4 km. south of Villavieja and couldn't cross. Returned to Meria thinking to set up a camp at Dr. Miller's site 5 km. north. However, was told that the village here was too wide to travel the narrow road. Not knowing when to expect Savage (sent telegram via Sarmento) decided to set



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up a camp  $3\frac{1}{2}$  km south of Villavieja, so bought a 6x6 tarp, a pot, some oranges, rice etc and did so. Grazed stony ground with clumps of thorn, near R.R. Shot 1 Tyrannus and caught a pair? of lizards. Lots of kingbirds around. Also have seen Crotophaga, quail, cactus wren. Suffered considerably from thirst and hunger, then from biting gnats which had been in shady places during the late afternoon but appeared everywhere in enormous numbers about 6 p.m. 6-20' repellent, helps but doesn't keep them out of nose & eyes. They disappeared about 8 p.m. and were replaced by mosquitoes which stayed until daybreak. Temp in shade at 1 p.m. was  $31^{\circ}$ .

June 8 Temp. at noon  $32^{\circ}$  on ground in shade. Day about half cloudy, half sunny (scattered blue sky). Very light immeasurable sprinkle in afternoon. Saw another pair of Cnemidophorus, one holding onto the other on the right side just in front of hind leg.

The gnats (Sargurus) did not disappear enough to start skinning until 9 o'clock. Then shot a couple more kingbirds. Rather than spend another day with the bugs (and another night, ~~and~~) decided to go back to town and either buy a mosquito bar or arrange to move by stuff back into town. So packed up my suitcase, shell box, and dissecting kit, hid them in the bushes, and walked back to Villavieja.

Mosquito nets were unavailable in Villavieja, and the town jitney was out of gas, so I hired a burro and 2 bags and one went back to bring in my stuff. Am now settled again at Carlos Sanchez house. Gave them a harmonica concert before supper and set a couple of traps in the store room. After the burro took I succumbed to 2 vile





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bottles of Kola (perfumed carbonated water) from the Meina bottling works. Sanchez caught a Molossid in the store room. Said it was eating cacao beans. Poured rain during the night.

June 9. Breakfast with Sanchez, then hunting along the road south of town. Shot 2 Crotophaga sulcirostris, 1 Columbigallina, 1 Sporophila, and 1 Tyrannus. Saw cactus wren and Torphe. After lunch went swimming in the Rio Magdalena, took pictures of 2 babies of a brother of my host. During this time a cat ate up 2 stuffed kingbirds. Went hunting again in afternoon about 4:30 and got 2 quail and a mourning dove [third smallest dove-pigeon that I have seen hereabouts]

Sun almost all day. No rain. Great numbers of bats flying up and down our street at about 7:30-8, many going in and out of our roof. Too dark to see them flying.

June 10 After breakfast went south of town and shot a pair of parakeets and another Sporophila. After the experience of the last few days of trying to remove the goads in the field amidst great clouds and consequently ruining skins or goads or all three (bird's and cuerpo mio) today brought them home before opening them up. Think the preservation will be perfectly OK. Several light showers in A.M.

at 2 p.m. went swimming in Rio Magdalena and was just coming out when a couple of boys came to tell me Savage et al. had arrived. They are camped only 10 or 15 km. S? of Villavieja. Packed up and started back to their camp, but had to go up around head Rio Vieja - a matter of a couple of hours. Am much surprised at difference



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in flora and climate of regions lies close together. Passed some slopes of pure, impenetrable, tall chapparal. Camp now is on savanna of 8-inch grass with only a few clumps of thorn + organpipe cactus. Streams through the savanna (at bottom of gorges) are said to be heavily wooded. The country immediately surrounding camp certainly has fewer of the 9 bird species than the region in which I have been hunting in Villavieja, but looks better than there for mammals. As for climate - much cooler here. Insects - at least 5:30 - 8 p.m. - practically non-existent. Greeted on arrival by linens, deluxe dinner, private tent completely netted, radio, considerable flight of bats over lantern at 8 p.m.

17 1/2 km. SE Villavieja, Huila, Colombia

June 11

June 11 Up at 5:30 to look around after a night of no bugs. Saw quail, kingbird, Ceryle, Columbigallina, Cactus wren, thick-knee, rabbit. A short hunt yielded 1 quail, 1 kingbird, 1 little dove, and later in the day, another little dove and 3 vireos. Also think I saw *Syrnolopis*. Put out about ~~20~~<sup>13</sup> museum specimens along stone wall across savannah; some shrubs along wall; baited with corn meal.

Camping conditions continue to be superb. No rain all day but clouded over at dusk. A few *Molossidae*? of small size at early dusk, but not ~~many~~ many bats later. Went jacklighting across the savanna (grass, meads, paddles with mangroves). Saw 1 rabbit and 1 pair of very bright eyes which when shot turned out

temp 6/13 310

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to be alligator. Heavy rain at about 9 p.m. and off and on most of night. at least  $\frac{1}{2}$  inch.

June 12 One large hispid *Sigmodon* in trap line. Morning cloudy, clearing about noon. Temp. in breeze under tarp  $30^{\circ}$ . Most of day hunting + skinning. Went jacklighting after dinner and got 2 rabbits. Saw 1 other and a poorwill. Light shower during night. Practically no 8-o'clock bat flight.

June 13 Nothing in traps. Skinned rabbits + birds. Temp. at noon  $31^{\circ}$  in breeze under tarp. Two immeasurably light showers in afternoon. Finally spotted and got some *Synallaxis*, but in peering into the tangle where one of them was chirping stuck my face into wasp's territory and was nipped either once or twice on the end of the nose. Whole face all puffed up and still can hardly see out either eye. and on top of that couldn't find the *Synallaxis* I was stalking.

Savage et al. went to Meria to pick up Smith etc., but couldn't get enough gas to get back, so are spending the night in Meria.

Put out a new trap line along stream in wooded region. No big trees, quite dry.

Went jacklighting after supper. Had seen nothing when I heard the mozo calling me. Went back to the tents and learned that they had seen a fox only 10 feet from the cook tent. Despite the shouting and commotion it had only retreated about 40 yds, where I shot it. A nursing ♀ with grasshoppers + bird in stomach. Pupils round.



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June 14 Very light sprinkle in night. Morning clear with scattered clouds. Temp at noon  $35^{\circ}$ . Humidity  $60\pm$ ? Nothing in new trapline. Two more *Dryallaxis* in morning, and skinned <sup>dog?</sup> foot. No rain all day. Another *Dryallaxis* and a young vireo in p.m. Jacklighting after supper but saw nothing. Savage et al. did not return from Meria, so will have recovered from my wasp stings before any public appearances.

June 15 Shower during night but probably not more than  $\frac{1}{8}$  inch. Nothing in traps. More birding in morning. Savage et al. arrived before lunch. Smith didn't arrive because his baggage had not yet come from Miami. Savage et al. had stayed in Meria to get gasoline but none available. Returned here on cleaning fluid and not much of that.

Savage found eggs of 2 species of doves. One, the largest, from "the largest dove around here, like the ones in California."

The egg is 29 mm. long. The smaller egg is 22 mm. long.

Temp at noon in breeze under tarp  $30^{\circ}$ . Day mostly sunny with scattered clouds. No rain. Humidity low,  $30\%$ ?

after supper shined another wild dog? about 60 yds. out on savannah from camp. Wounded him with #4's, but think he escaped. Will look more tomorrow. Went jacklighting again. Shot one thick-knee by mistake for a rabbit, saw several poor-wills but no mammals.

June 16 No rain. Temp. in shade at noon  $31^{\circ}$ . Savage et al. left before dawn for Villavieja and thence by burro to set up another camp. He has been finding no fossils using this camp as headquarters and now with no gasoline has little prospect. Smith not





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yet here. Since everyone agreed that I, the cook, and the camp boy would starve if we didn't have some meat, I devoted most of the morning hunting a rabbit. Finally got one and two doves close to camp. Two photos of camp this afternoon looking east and west, in that order. One *Oryzomys* in the trap line. That makes 2 mice in 70 trap nights. Moved the line to along another stone wall that runs partly through field then into a grove of apple-like trees. Leaf-cutter ants, each carrying a small, white, very fragrant blossom.

Jacklighting after supper saw one rabbit. One *Oryzomys*? in trap line.

June 17 Light rain ~~starting~~ began sometime during the night and still going at 9 a.m. Three more mice in the traps along stone wall through trees. Temp at noon under tarp, raining, 27°. Stopped raining about 1 p.m., then sun came out. Total rainfall from during night to 1 p.m. probably not more than  $\frac{1}{4}$  inch. Night clearest yet, no clouds, no moon.

June 18 But rain before morning, perhaps  $\frac{1}{4}$  inch until it cleared slowly ~~and~~ at about 8. Afternoon sunny and evening clear. Moon temp. 31°. Two mice in the trap line, one a juvenile *Oryzomys*, the other a *Heteromys*-like mouse with cheek pouches.

Assorted birding during the day, including one of a pair of *Heterospizius* (I hope). Most exciting was the vireo hunt. Near where I got the vireo the other day in a grove of trees a vireo was making repeated squeaks like a fledgling about to be fed. Another vireo was ~~talking~~ moving about in the trees & bushes making no sound. I was trying to get a clear



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shot at the fledgling to get both it and the parent as it was being fed. They moved into denser brush, however, so I decided to take one while I could get it. Used .22. Almost before the vireo ( $\sigma$  2089) hit the ground (certainly within  $\frac{1}{2}$  second) an iguana (2087) darted out of the brush, ~~the~~ grabbed it in its mouth, and started off with it. Since vireos have been hard to come by, I fired another .22 at the back end of the lizard. This made it drop the vireo, which I retrieved. Since the lizard was a nice medium-sized one for pickling, I decided this was an appropriate one to collect. Had no more crab shells, so dumped  $\frac{3}{4}$  the shot out of a #8 full load and collected him with this. Even so he lost the top of his head at such close range.

June 19 Cloudy at dawn and for most of day except for about 2 or 3 hours of sun in the middle of the day. Temp at 1:30 under tarp 31°. On my way to my traps at dawn I flushed a quail across the stream about 100 yds from camp. I stood still looking for the mate but saw instead a bush dog watching me, just within range. It stood still while I reloaded with #4s, so I shot it. Saw the impression of a very delicate fox. Stomach full of grasshoppers, grass, and 1 mouse. Only 1 mouse in traps: an immature *Onychomys*.

Last night and today were the first 24 hours without precipitation. Concerning the wet and dry seasons. Almost everyone I have talked to so far claims that the ~~the~~ rainy season is in November-December and thereabouts, and that the dry season is now overdue by a couple of months: should have begun back Feb or March.



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June 20 Nothing in traps. Weather overcast all morning with occasional sprinkles. Temp. at noon during sprinkle:  $28^{\circ}$ . Afternoon overcast also.

Went at dusk to Hacienda San Diego to look for bats. Many flying around the main building, which is in a hollow among fruit trees. Caught some in the high-ceilinged rooms of the house and hanging in the porch. The residents discouraged extensive collecting because they said it would be easy to get all we wanted in the caves tomorrow.

June 21 Went cave hunting with the Hacienda administrator. They are in the quebrado of the acinte creek just above the Hacienda buildings and consist of scooped out places in the conglomerate cliffs of the quebrado as well as curious deep holes in the cliffs. These holes are about 10 inches in diameter and as much as 15 feet deep; maybe formed by roots. No bats. Saw four mole crickets? under a shelf in a dry wash but got none.

Considerable sun during day, no rain; no temp. reading at noon because I was off cave hunting.

Returned at dusk to the hacienda. Hunting about as before with addition of a big *Phyllostomid* which came in with a flutter of wings and scratching of feet to roost under the roof of the porch. The administrator says we should be here a month or two hence when the nisperos are ripe. Bats come from miles to feed on them.

June 22. About  $\frac{1}{8}$  inch of rain during night and morning overcast. Temp. at dawn  $22^{\circ}$ , at noon still cloudy  $29^{\circ}$ , humidity  $\pm 60$ . Afternoon mostly sunny. Put 10 traps



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along stream baited with fish.

June 23

No rain during night. Morning cloudy, clearing about noon to scattered clouds. Temp. at 1 p.m.  $32^{\circ}$ , humidity  $30\pm$ . Nothing in traps. Hunting in the morning I shot 2 rabbits for the pot. Owing to the cotton shortage and to how poorly the other two turned out stuffed with grass & paper I decided not to stuff them.

Afternoon sunny. Picked up traps and put them along stone wall running across savannah, baited with ripe plantain.

June 24

Nothing in traps, although several sprung (without bait) as usual. No rain during night. Morning overcast clearing about noon. Temp.  $32^{\circ}$  at noon. Afternoon sunny. Still no word from Savage, Heron, or Smith. Sent the camp boy to Tella for more grub. Says it is Saturday. Went back to Hacienda San Diego after dark and set 11 mouse traps in the kitchen and store rooms. Shot 2 more Molossidæ in the eaves of the house, and a late-pregnant rabbit.

June 25.

The 11 traps in the house had 8 house mice. Went back to the little cave in the dry wash near the hacienda and shot 3 leaf-nosed bats 3050-3052. Was skinning these when the truck finally came. Packed up and left about noon for Savage's camp along the Fajas Creek  $7\frac{1}{2}$  km.  $\bullet$  E of Villavieja.

A review of the Camp Cascarron, Hacienda San Diego,  $17\frac{1}{2}$  km. SE Villavieja: Camp was near the middle of a mesa a couple of miles square, transected by Quebrada Cascarron, Quebrada aceto, and others. To the east





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(Hacienda Ruby) the meso rises into the foothills of the eastern andes, to the west drops off into badlands. Most of the meso top is flat grassland, the seed stalks of the grass being about 8 to 10 tall. These are dry but the blades at the bottom are green - the whole much too <sup>green</sup> to burn. When we arrived much of the meso was almost marshy with choruses of frogs and even pools big enough for a 4-foot alligator. The swampy places grew a 2 foot sticky "legume". The quebradas were filled with a dry thorny woods. Islands of thorn and organ-pipe cactus (no Opuntia) were scattered across the meso, separated by several hundred yards. By the time we left, most of the wet places had dried up.

Abundant or characteristic birds of the region include: Ibises, quail, thicknees, three doves (but not ~~many~~ Leptotila) Fulvous, Crotophaga auri, burrowing owl, Thamnophilus, Vermilion flycatchers, Muscivora (very abundant), tyrannus, Cyanocorax, cactus wren, Polioptila.

Every evening the Muscivora can be seen heading towards and down Quebrada Coscarron, apparently to some roosting tree. Several dozen roost in a tree overlooking Hacienda San Diego.

Henas is still in Neiva, Smith still in Bogota.

The new camp is along the swift, cobbled, Fojas Creek in the middle of dry thorn forest, quite different from the Savanna at Coscarron and not nearly as open as the country along the road south of Villavieja. Savage describes birds like Penelope and has seen doves of at least two kinds nesting. a Leptotila <sup>with</sup> ~~2~~ 2 young



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less than 5 days old is nesting 7 feet up in a hole about 5 yards from camp. There seem to be fewer birds here than last camp. Saw my first *not* nests in a gloomy glade.

after dark I retreated from the luring grates to bed. Had just gotten to bed when Savage reported a rat up a tree about 10 feet from the table where the radio was playing. I shot it - *Marmosa* 3053.

June 26

7 1/2 km E Villavieja, 1400 ft., Huila, Colombia

Skinned *marmosa* before breakfast, then off with Savage and Perico to the badlands. Watched them dangle up a ground sloth skull + femur, then carried the skull back after lunch. Looked for small mammal bones but found only fish, crocodile, and reptile. Certainly lots of bones around. Don't know what kind of small mammals live out in the badlands, but it sure looks like a good place for *Dipodomys*. Saw ~~no~~ small mammal footprints in dusty places. Doves of 3 kinds (smaller), especially near water, & vermillion flycatchers were the most conspicuous birds. Few lizards. People at the ranch house between here and the badlands say that a few bats live in little caves in the dry wash near their camp, but that many more are in a big cave somewhere below them. Put out 14 museum specials baited with oatmeal in thick thorn forest.

June 27

Jack-lighted proboscis an hour, mostly along the road. Saw 2 rabbits, 2 poorwillows, and 1 screech owl. Nothing in the traps in the morning so went birding



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and reconnoitering. Walking for 2 to 3 hours I saw very few of the 9 bird species. One Tyrannus melancholicus which I shot, a few pairs of Columbigallina passerina, one pair of Forpus, ~~some~~ 2 Crotophaga<sup>sp.</sup>, and heard about 3 coveys of quail. Mourning doves are by far the most numerous bird - many flocks of 10 - 20. Have seen no flocks of this size at other camps.

Temp. at noon 29°, cloudy. All morning cloudy-bright. Quite humid, maybe 80%.

Concerning the unseasonal rainfall this year, the following is a quotation from "Semana" (Bogotá imitation of "Time") vol. 8, no. 192, June 24, 1950, p. 9:

"En vez de sequía en febrero, como acontece casi todos los años, en 1950 el río Magdalena ha tenido una extraordinaria creciente en junio. La semana pasada las inundaciones habían llegado al clímax a través de extensas regiones selváticas, o agrícolas y ganaderas. Particularmente varios puertos importantes, como Berrio, en Antioquia, Barrancabermeja y Wilches, en Santander Sur, y El Banco, en el Magdalena, enfrentaban una seria situación.

"...Dicen esos prácticos y colonos que las crecientes alcanzan mayor nivel y extensión cada 7 años."

⚡ Picked up trap line in dense thorn woods and put it in slightly more open country - grass with clumps of thorn + cactus every few yards: more area of brush



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than grass.

Jack lighted for about an hour. Saw one rabbit, 3 poor wills, a few bats. No bats night roosting in the abandoned thatched hut along the road. Sprinkled rain during early evening but just enough to settle the dust.

The river rose about supper time. Not gradually but by a sudden surge as though flood gates had been opened. The first wave of muddy water could be heard coming and was easily visible when it arrived.

June 28

Nothing in traps. Went hunting in morning to the quebrada above the local hacienda, hoping to find in it some little bat caves, but none. Only bird worth shooting was 1 kingbird. In afternoon went hunting along the road about 2 hours, but nothing worth shooting. A few small *Crotophaga* seen (almost certainly *sulcirostris*) and several quail (but no longer need them). Quite a bit of the local terrain is waist-high weeds and grass, but no sedateers in it. No swallows.

June 29

Nothing in traps. Left about 8 with one of the local hacenderos to "the bat caves." After a few stops to look at fossils that he knew about we took a trail down through a stand of bamboo, plantains, and corn to the Lajas river, and there overhanging the river was a 12-inch tree with a hollow trunk with a nest about 15 feet up in it - a 10-inch opening on the bottom side of it. With some prodding about 14 large





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bats emerged from it. Some of these landed in trees nearby and I shot 7 of them. 3061-3067.

Jacklighted back to the barava plantation, a total distance of about 8 or 10 kilometers. Saw 5 rabbits (shot 2), about 20 poor wills, and in and near the barava patch quite a few large and noisy bats. These flew quite close to me with loud fluttering sounds. Saw no other mammals.

The camp boy (Paulino) brought in a bird, the first he has gotten with his slingshot. It was Conurostrum, a genus I have been looking for but hadn't seen yet.

June 30

June 30

Nothing in traps. Left after breakfast for Villavieja via the horse trail to look for swallows, seedeaters, and Crotophaga. Returned via auto road. In this 20 kilometers apart saw not one of the 3 species. Shot 2 Crotophaga, but both were sulcirostris. Saw a dozen or so others, all looking like sulcirostris. Saw quail, parakeets, little dove. Saw small cat? footprints.

On the way back from Villavieja looked in many culverts under the road, most of them galvanized corrugated pipe just big enough to crawl through and ~~about~~ just longer than the road is wide (1 car width). Over half of those examined had bats (3072-3084); two species mixed in one of them. A tendency for males of the short-eared one (3075 etc.) to hang alone, several females (preg. + nursing) in one. All seemed alert, not torpid. The temp. in the culverts was rather



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warm; one open only at one end was much warmer than the air. Got 15 bats all told, about a half dozen escaped, and I have looked only in the tunnels under the Villanueva third of the road. Discarded a few badly shot ones.

Light sprinkle at noon, just enough to settle the dust; somewhat more at 7 p.m. but not more than  $\frac{1}{6}$  inch. Have been in ~~our~~ <sup>at noon</sup> camp only one day and forgot to take temp. on that day. It has been as low as  $20^{\circ}$  in the early morning.

Decided to track down Savage's mystery bird, described as a big brown coot. It makes a raucous sound mornings & evenings and also a soft, deep, mellow booming that can be heard only 10 or 20 yards, always encountered so far in heavy woods & brush. I had it all figured out as a tanager, but when I shot one this evening it seems to be a forest-living rail.

July 1

Light rain during the night and until about 9 a.m. Total measured in can was about  $\frac{1}{8}$  inch. Nothing in traps. Temp. at noon  $29^{\circ}$  <sup>cloudy</sup>. Got a few more bats out of a culvert near camp, this time 2 late pregnant ♀♀, a non-preg. ♀, and a mature male. all wide awake.

Moved trap line to a dry wash running through fairly thick woods.

Jacklighting for about  $\frac{1}{2}$  hour shot 3 rabbits, saw 1 other, 2 poor wills, and one long-tailed owl about size of barn owl.



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July 2 Temp. at about 5:45 a.m. was 19°. This felt like the coldest yet. Nothing in traps, ... 78 trap nights here so far with nothing. Day with scattered clouds, about half sunny half cloudy. Temp. at noon 29°.

Looked in some more culverts and got 3 more bats, 3105-3107. Each of these was alone in its own culvert, even the late pregnant one. If chased out of a culvert they frequently hang up in a nearby bush. ~~about~~ Some of the culverts are corrugated iron pipes and some are made with dry stone walls with timbered ceilings, about 2 feet by 2 feet. They sometimes go into cracks in these latter. Also present in the latter stone & timber culverts are wasps, small brown lizards, and numerous snake skins.

The 3 rabbits I shot at 8:30 last night were too stinky by breakfast to eat.

Hervo left for Meira to pick up Smith,

July 3 Light rain beginning at 4:15 a.m. Stopped about 7, then more later in morning, total  $\frac{1}{8}$  inch. No sun up to 1 p.m., temp. 24°. Nothing in traps. No sun in afternoon either. Hervo arrived with Smith before dinner.

July 4 Nothing in traps. With no prospects for more specimens, went to badlands with Savage & Hervo and sifted for rodent teeth. Temp. at noon (overcast) 26°. Humid. 60±. All morning cloudy, afternoon mostly sunny.

Moved traps to a dry wash running through a field of tall grass (7 ft.) and weeds. Lots of carnivore tracks in the sand in the wash.



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Jacklighted twice down this wash for about  $\frac{1}{4}$  mile, but saw nothing. One bat hanging under the concrete road bridge but didn't get it.

July 5 Nothing in traps so shot birds: 2 quail, 1 kingbird, 5 *Coryphospingus*, 1 *Crotophaga sulcirostris*, and 1 cactus wren. Didn't get around to the *Crotophaga* and threw out the cactus wren because it was in such worn plumage.

Jacklighting after supper shot another bush dog by the bridge over the dry wash where my traps are. Eyes yellow-white, no orange or green. He stopped running when I squeaked.

July 6 Temp. at dawn  $18^{\circ}$ . Morning all sunny. Temp. at noon  $31\frac{1}{2}^{\circ}$ ; humidity  $40\pm$ . One small *Oryz.* in my traps in tall grass. Skinned fox and " and bird in a.m. and packed up a box of specimens to store in Villamieja. Drove to Villamieja in afternoon left specimens + fossils there, hunted bats, and walked home after dark as no gasoline. In the peak of bell tower of the church among the beams were 7 large *Phyllostomids* (*Hastatus*?). Caught 3 of them and 4 escaped through the bell "arches" despite guards of unpten birds. Also looked in chapel in cemetery but couldn't catch great numbers of ? *Molossus*? under tiles of roofs. Many *Molossus* flying down the streets of Villamieja at dusk.

July 7 Nothing in traps. Took about 5 photos of thorn scrub and a dry wash through thicket forest. Temp at noon  $31^{\circ}$ , humid  $50\pm$ . Morning + afternoon mostly sunny, scattered clouds. ~~the~~ Immeasurable light shower at





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sunset.

16 km NE Villavieja, 1600 ft., Huila, Colombia

July 8 Left after breakfast for new camp on edge of badlands. a few wooded quebradas, but very infrequent water. Half hour on foot to the north is the large Rio Cabrera, trail ~~is~~ to it mostly through thorn forest. The truck broke down (battery dropped out) on way in, so I now have no traps to put out - and a couple of fermenting skulls in truck. A local boy says there are foxes, cats, rabbits, peccaries, and deer near here. The deer and peccaries are perhaps in the foothills, which begin just beyond the Rio Cabrera.

Jacklighting after supper I saw 4 rabbits and a few porcupines. Quite a few bats.

July 9 Hunting at dawn saw 1 rabbit. Heard several rails and saw 1 running in the open with long strides like a rhea. Many parrots, cactus wrens, mourning doves. Two very nice small caves only 100 yards from camp, dug by people looking for indian gold. Best caves for bats that I have seen so far - but no bats in them.

a local tree looking like madrone ( ) seems to be deciduous. Some of them are losing the last of their leaves, some are just budding out, and some have lots of leaves.

Went fossil + fox hunting out into the badlands until about 2 p.m. all sunny. Then went down a dry wash to the river looking for hollow trees and caves. Found one hollow tree and 2 small caves in



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the mud walls of the quebrada. One of these was a vertical fracture of the bank, closed at top and wide enough at the bottom to crawl back about 20 feet. It was cool, dark, and contained one ~~the~~ medium-sized bat, but the mud walls looked so insecure that I didn't dare crawl in.

Traps arrived by burrow about 5 p.m. so put them out through the gray sandstone badlands near camp - organ pipe cactus, thorny mimosa, a small reddish Spanish bayonet. Jacklighting saw poor milk, no mammals.

July 10 Nothing in traps. Walked to Rio Cabrera by way of the south fork of the road. Mostly through terrain similar to that at camp Tojia (rather open thorn scrub). Shot 3 crimson-crowned finches and 1 *Crotophaga sulcirostris*. Saw only a few of each of these, plus a few kingbirds, a few parakeets. Heard no quail (have heard none from this camp). Morning sunny with scattered clouds. Temp. at noon  $31^{\circ}$ , humid  $40^{\pm}$ . More birds in p.m. No jacklighting in evening. Instated, packed specimens etc. in preparation of going to Bogota tomorrow to locate my trunk.

July 11 Left 4 a.m. for Villavieja, Meria + Bogota. In one hour of driving before dawn saw 6 rabbits and 1 anteater, the latter crossed the road in open country with a raccoon-like rolling gallop. When we got to Meria, found that my trunk had arrived, so after lunch and shopping returned to camp. Smith says that the flora around Meria is quite different than at any of our other camps. Heron when quizzed



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about wet and dry seasons is very definite about the seasons in the coffee country (2 wet seasons, one in fall ending before Xmas and one in spring) and at Barranquilla (1 six-month dry season beginning about January). He doesn't know about this region. Savage says that there was a lot of rain just before I came and Smith says there were many heavy rains while he was in Meria June 28 to July 3. There was less than  $\frac{1}{4}$  inch during this time at our camp  $7\frac{1}{2}$  km. E Villavieja.

Returned to camp in late afternoon and set out 54 traps (Museum specials with oatmeal) some in badlands, most in brush bordering it.

Jacklighted about  $\frac{1}{2}$  mile down the road towards Rio Cabera across badlands and through thorn scrub, then back up a dry wash through forest. Saw no mammals until back in camp where I shot *Marmosa* 15 feet up in a tree over the trick that is our water supply.

July 12 Nothing in traps. Many baits gone (ants?), only 1 sprung. Went probing into crannies in walls of quebradas in morning. Saw no bats, a few bat droppings, one rabbit in one of these crannies and one rabbit out in the open. Took photos of badlands near camp to show kind of terrain in which mammals are lacking.

Put out 30 Museum specials and 1 Schuyler along a stone wall in thick woods bordering a large quebrada that contains a trickle of water for a few hundred yards. These woods not very thorny, many plants rather broad-leaved. All traps along stone wall or on limbs, all baited



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with barana. Also 20 along a dry wash bordered with  
thorn scrub, these too baited with barana. Rebaited most of  
the old line of <sup>54</sup>~~40~~ with barana.

Overcast all day. a few immeasurable sprinkles.

Went jacklighting about 8:45 to the new trap line in  
thick woods. Three Marmosa in traps, ~~at~~ two of them on limbs  
and one on top of stone wall. Saw no mammals.

Coming across a stretch of badlands on the way back lost my  
bearings only a few hundred yards from camp and  
ended up on a totally strange road that I didn't know  
existed so near camp. No moon. Spent the night on the  
sandy-gravelly bottom of a gully and got my bearings  
at dawn - still only a few hundred yards from camp.

July 13 One badly eaten Oryzomys in the thick woods, nothing  
else. Took some photos of badlands habitat where no rice  
line, and the pits that didn't have any remains (except 2  
live toads in one). Picked up the Marmosa trapline.

all Marmosa so far within 50 feet of water.

Morning partly sunny and partly cloudy-bright. Went  
with Savage in afternoon to collect an Enterothoe, then baited  
remaining traps (20 in dry wash and <sup>54</sup>~~40~~ in badlands and along edge).

Shot one small Myotis? flying at early dusk among trees (3145)

5 km N Villavieja, 1400 ft; Huila, Colombia.

July 14 Nothing in traps. Picked all up and packed to go to Cerbatera.  
Smith found nest of yellow-headed Blackbird in Typha with 2  
pale blue eggs.

Left about 1 p.m. and after stopover in Villavieja went  
by car out to Cerbatana where Aneta, Linetta, Figea,





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Traps

Lajas -

Bolton

Cerbatana

	Bodlands + edges of	thorn forest		<del>dry wash thorn</del>	dry wash thin grass	broad leaf forest
		thick	open			
Lajas -		14,	13, 13, 13, 13,	13, 13	13, 13, 13 ①	
Bolton	12, 54, 54, 54			20, 20		31 ④ (4)
Cerbatana		<u>Edge of plantain - cane field</u>		<u>Tall grass + weeds</u>		
		24		146 ①		



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Paulina, and 4 young campfollowers set up camp. Then all left except Paulina and I. Set 1 steel trap in the tunnel under railroad behind camp where I saw? cat? tracks. Jacklighting for about 10 minutes saw nothing.

July 15 Birding and reconnoitering in morning: got 5 seed eaters, saw Crotophaga auri, and about 2 swallows flying high. The grass and weeds in the bottomlands and along the railroad tracks are lusher than anything at the other camps. Very little thorn scrub near camp but seem to be some patches on the hills in the bottomlands. Set ~~about 75~~<sup>73</sup> traps in the grass - weeds and ~~about~~ a dozen along the fence of the not-very-thriving plantain and sugar-cane field along the stream near camp. Also 2 more steel traps in railroad culverts.

Day mostly sunny with scattered clouds. Temp. at noon 31°; humidity low  $\pm$  30%. A good drying day with breeze.

~~Rebaited same trap line.~~ Jacklighted for about  $\frac{1}{2}$  hour but saw nothing. at dusk over weed fields just below bridge looked for bats and saw none.

July 16 One Oryzomys in traps in tall grass. Rest of day birding and rebaiting same trap line. Saw fledgling humming bird but parent not identified.

Day mostly sunny with numerous clouds. Temp. at noon 33°; humid  $\pm$  40. No jacklighting although Paulina went down to bridge about 8 p.m. to look for bats and saw nothing.



P. PEARSON

1950

July 17 Nothing in traps ~~but~~ except 1 ♂ bush dog in culvert under RR behind camp. Went swallow hunting in AM down the quebrada by camp to the Rio Magdalena, then up the river to near Meiva, then back along the RR. Saw 4 Stelgidopteryx and got one of them. Many swallows on telegraph wires near Villavieja at one spot. Shot 2 of them but both were Lidoprocne.

When I returned to camp a little before lunchtime, Figaroa (the cook) \* Pinetta (the chauffeur) had come, along with a special messenger from the Servicio in Bogota. His message was that all foreigners were to present themselves immediately in Bogota (presumably because of the Korean situation). I suspect that most of the furor is really because of Savage's commission in the Reserve Corp., but am planning to leave tonight in the truck for Meiva (if gasoline for it arrives as expected on this evening's freight train).

Morning mostly cloudy bright, afternoon scattered clouds. Humidity = 40, temp. at noon 32°.

July 18 The truck did not come. No traps were out last night, no jacklighting. Shot 4 cactus wrens for Dugard out of a flock of about 7. The adults still in very ragged plumage. After lunch went to Villavieja along the road to see what cooks. The ~~the~~ gasoline came and the truck went to Meiva — without picking us up. Came back along the railroad about 2:30 - 3:00. Saw no Stelgidopteryx. While I was gone 2 policemen and some others came to camp (they had passed me along the road) and told Paulino that all the gringos were returning to the United States.

Morning overcast, with enough drizzle to settle the dust



P. PEARSON

1950

and erase footprints - Temp. at noon 30°. Afternoon sunny with scattered clouds.

Put out ~~about~~ 18 museum specials along the stream just behind camp where they can be picked up quickly in case of a rapid departure. Jacklighted about halfway to Villavieja along the road and saw nothing until back to the stream by camp where I shined along the stream a pair of eyes smaller and more orange than fox. By the time I had made sure they weren't dog, cat, goat, sheep, or pig the animal had had enough and ran off up stream. Saw it once again at a distance. Maybe tayra? Maybe raccoon?

July 19 Nothing in traps. Light rain at dawn, perhaps 1/16 inch. Packed up everything and at noon packed by burro into Villavieja where I was just finishing packing the collecting chest in preparation for leaving for Bogota on the morning train when the truck arrived with Smith, the ~~chef~~ chauffeur, Motos, and the cooks. The latter 2 had been paid off and were on their way to Bogota. Savage & Henshaw had already gone to Bogota. But according to Smith there was no real emergency, the consul didn't want to see us, nobody had to return to the U.S. So I rearranged the equipment again and back to Cerbatana again. Made camp in same place after getting the poles back from Alfredo, to whom we had rented them.

No traps out but had some fun jacklighting. Many bats flying under the R.R. bridge and especially under and around a large kapok tree about a half mile further down the quebrada. Under this tree ~~was~~ the chipping





P. PEARSON

1950

and squeaking of flying bats was very loud and piercing. <sup>proving by the sound</sup> Some seemed to be landing in the tree, but I never saw one alight. I had been looking up into the tree for about 5 minutes hoping to get a shot at a sitting bat when I became aware of a pair of eyes too large for Marmosa. Shot down a ♀ *Phylander* with 4 furred pouch young. On the way home stopped at the 3 railway culverts. In one hanging on the sides were about 6 bats. Shot 1 (wounded) and ran into the tunnel to grab it and was severely bitten on one finger - a fairly deep flap of skin almost completely cut out in one quick nip. Bled profusely. Wrapped the beast in my handkerchief and waited for the others to return. One of them returned several times but flew out each time as soon as my light reached him. In the next tunnel, however, was another bat, which I shot. This (and the first) was a vampire. Got one more a little later in the first tunnel - all probably between 9:30 and 10. One had considerable blood in intestine.

July 20 Skinned til about 10:00 then went down railroad to Quebrada Fajas down Fajas to Magdalena, up ~~the~~ Fajas to road, then back to camp. Saw no *Stelgidopteryx*, several *Protophrynus* on phone wires. A little above the RR on the north bank of the Fajas found a nice hollow tree leaning over the stream. No bats in the tree but a dozen or more bats of 2 species in the dark "cones" among the roots in the bank. Shot 9. Many flew out at each shot, but most would return. A few flew off and a few hung up



P. PEARSON

1950

a few yards away. Skinned in afternoon, then put out 4 steel traps near camp, + 2 Schuylers baited with banana. After supper a wind storm came up accompanied by  $\frac{1}{4}$  inch rain. No jacklighting.

Day mostly sunny with breeze. Noon  $33^{\circ}$ , humid  $\pm 40$ . Temp. later in afternoon got up to  $36^{\circ}$ .

July 21

1 Marmosa in a Schuyler and 1 bat in a banana-baited steel trap set in thick brush under RR bridge. Went swallow hunting in the morning till about 2:30 down our Quebrada to the river, then up the river toward Villavieja, then down the river to the next quebrada north of ours, then home down the RR. Saw some *Stelgidopteryx* circling over brushy fields down our quebrada but got none.

Put out some bat traps under the RR bridge - rosettes of banana-baited museum specials on the ground surrounding a very ripe piece of banana. also 2 on fence posts nearby. also 1 steel, 2 Schuyler, and about 15 museum specials baited with banana along the stream among trees in the 1st quebrada north.

Day mostly sunny, a few clouds. Temp. at 2 p.m.  $33^{\circ}$ ; humidity about  $\pm 40$ .

Went jacklighting with Smith down the quebrada to the kapok tree and beyond through the gloomy stretch. Saw a few poorwills and many bats around the kapok tree. They either land or hover to pick things off the tree. Also several bats under RR bridge. Then jacklighted along the RR to the next quebrada north but saw nothing. One bat in the vampire tunnel but it flew as soon as my light struck it.



P. PEARSON  
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July 22 Only catch was 2 more bats in the banana sets. Went swallow hunting down our quebrada to the river, up the river to Quebrada Fajas and the bat tree where I got 4 more bats, then home same route. Got one swallow in same tree as last one & also 2 Crotophaga.

Put out about 15 Museum specials in the bushes and along stream by camp, and about 10 along a stone wall in the badlands (grass, much grazed).

Went down to papah tree at dusk but only saw ? Molossus? flying. Stayed till dark but none of the big noisy bats had arrived yet. also saw only 1 under RR bridge. Shot rabbit and one more vampire in same tunnel. Temp. at noon 31°, humid  $\pm$  30

July 23 In traps 2 mermosa (one behind camp, 1 under RR bridge in bat traps), 1 bat, 1 Argemys along the stream in woods north of camp, ~~and~~ 1 Didelphys also along stream in north quebrada, and 1 vulture in tunnel behind camp.

Temp. at noon 33°. Morning overcast, afternoon mostly overcast until about 3 p.m.

Picked up the traps in the north quebrada but left some of the steel traps, the bat sets (but without much bait) and the trap line around camp.

Spent goeklighting down to bridge but only a few flying bats and a few poor wills.

July 24 Traps held one more vulture and one much-eaten mermosa. Packed up everything and left for Villavieja at 8. Repacked



P. PEARSON

1950

things and loaded truck etc. onto plateau in p.m. While the station master was making out the papers in his office a small bat flew in and was knocked down by one of many bystanders (no. 3208).

Day overcast, light sprinkles at dusk.

Compared to our other campsites, Cerbatana has some higher bottomland nearby, the thorn scrub is less abundant and less dense, the grass shorter and looking as though more closely grazed. The grass was faintly green, mostly brown. When we drove into town for the last time there was no water flowing in the Lajas.

July 25 Left on morning train for Castilla, then drove to Chaparral, part of the way across a bunch-grass plain very much like Hacienda Pánuco at 13,000 ft. on the altiplano. Spent the night in Chaparral.

July 26 Shopping in Chaparral and much talking with various people about how to get to the bat caves of Tulum. Tried going out a road across the airport, a road that was said to take one to only 2 hours on foot from the caves. The road was just about passable but several long & steep hills of red clay would have marooned us for days in case of a single rain, so we drove back and made camp about 2 miles outside of Chaparral after arranging for going to the caves tomorrow.

Camp is along a small stream bordered with rather broad-leaved trees - no spines. Most of the





P. PEARSON

1950

surrounding terrain is grasslands. The total effect is totally different than the Villavieja region. Birds are much scarcer. Have seen Crotophaga ani, Tyrannus tree swallow, and Smith saw Sporophila.

Day completely cloudy, evening considerably cooler than at Villavieja. Camp about 2 miles west of Chaparral.

Cuevas de Tulumí,

Tolima

July 27

Left about ~~8:00~~ 8:30 AM with Paulino, + mozo on horseback with one cargo mule. Arrived on ridge overlooking the Quebrada Tulumí at about noon by a route not the most direct. While looking for an easy way down the steep sides of the quebrada I spotted a deer standing about 30 yds away. Called Paulino + the mozo to watch it while I ran to my pack my gun. The deer had not moved by the time I returned (3 or 4 minutes). Shot it, a tough old? male.

One of the caves can be seen from the hilltop and has an old abandoned cable, with gasoline engine, running down into it from the hilltop - presumably to remove guano. The other cave, the only one we have been in so far, is actually a huge limestone tunnel through which the Rio Tulumí runs. The ceiling is in places 75 or more feet high and there are additional holes + cracks in the ceiling containing many bats. All the holes were over the river, so I packed Paulino downstream with the bat net then fired a full load



P. PEARSON

1950

of 12<sup>+</sup> up into a populous hole. Somewhere between 20 and 40 bats fell in the river and Pauline fished out 16. Skinned until dark which comes early down in the gorge (we are camped in the cave). At dusk and after, two hawk-like birds flew for perhaps  $\frac{1}{2}$  hour near the ceiling of the cave apparently hunting bats, sometimes being chased by large bats. These birds make a loud snapping sound as well as a raucous rattling cry. Other fauna of the cave are cockroaches as big as a *Myotis* and at least 1 species of small bat, also large flat spiders and large centipedes.

July 28

Looked through the cave at sometime in the middle of the night. Still a hundred or more of the large bats (like 3210-3215) in their niches. Was surprised to find that their eyes shine. The hawks were flying in the cave before dawn - even with my eyes dark-adapted I could not see my hand in front of my face. The hawks were making a snapping sound as they flew, like a wooden ratchet, 5 to 10 clicks per second. Perhaps an echolocation mechanism. Many small parrots became apparent flying in and out of the cave after daybreak.

Skinned until about 3 p.m., then went to the "granio" cave upstream. It too has a stream coming out of it and is very high. At the entrance a medium-sized pale bat was flying in and out, disappearing into the trees for a minute or two each time. Missed it several times. I visited the cave



P. PEARSON

1950

at a point where there was still a little daylight were over a hundred "owls" sitting on ledges and flying about making much racket by squawking. The eyes shine, but rather faintly. Shot one, 3223, and a bat (3222) that was hanging on the side of the cave. We did not go in beyond the owls because the cave narrows to 6 or 7 feet and the water becomes quite deep. On the way home only a few hundred yards downstream from the owl cave found another small limestone cave with crawl-in entrance. Inside were a dozen or so bats. Was able to pick 8 off the walls although they were not completely torpid, (3224-3227 and later).

Returning to our cave we noticed a large cavity near the entrance containing perhaps 50 of the big *Phyllorhynchids* (*Lactatus*? 3228). at least a half-dozen of the "owls" were flying near the ceiling of our cave at dusk and for perhaps a half hour after. Skinned my carbide lamp for about 2 hours. The "owl" had 1 seed like a cherry pit in its stomach. Before going to bed (9:30 ±) did the rounds of the cave and found large numbers of bats in all the regular roosts (including the *Lactatus* roost).

July 29 The owls were back just at daybreak. Shot one to look at stomach: 3 pieces of what looked like nut shell. Temperature of cave yesterday varied from 22 to 23°. The small parrots with red forehead were back flying in and out of the cave at about 7 a.m.



D. PEARSON

1950

Left for Chaparral about 11:30 and arrived at 3. The deer skin + skull quite stinks. Smith had moved from our camp west of the town back to the hotel in town. Skinned until about midnight.

July 30

Finished skinning and packing. ~~about~~<sup>morning</sup> sunny. Light shower during the night but certainly not more than  $\frac{1}{4}$  inch. No rain yesterday or the 2 days before that.

Left 1 p.m. and arrived Gerardo about 6. Numerous Cari between Castella and Soano. also kingbirds, scissor tail + vermilion flycatchers,  $3\frac{1}{2}$ <sup>sp.</sup> doves. Looked for swallows most of the way and saw 1 tree swallow.

July 31

Left 8:30 for Bogota. 1 dead ♀ Didelphys on road at Salto; several  $\frac{2}{3}$  grown pouch young (65 days  $\pm$ ). Arrived Bogota 5:30.

Aug 5

40 museum species baited with walnuts in rather thick, ferny brush on the hillside near the Finca. Caught 4 mice (3243-3246). 3245 + 3246 near rock outcroppings.

Aug 6

Went by bus with Barero + Smith to the Paramo of Guerrero between Zipaquira and Pacho. According to Barero it is not as good Paramo as, for example, the Paramo of Guasca. I was impressed by the scarcity of birds. I don't think I saw more than a dozen individual birds in 5 hours out on the paramo (snipe, big thrush, sparrow, wren, swallow, flycatcher). Several lizards (3246-3247), two frogs (3248, 3249), no mammals. In one swampy part of the paramo and nearby saw ~~several~~ many runways, cuttings of grass and Espeletia flowers, and droppings that





PEARSON

1950

looked like guinea pigs. Borero says that guinea pigs are common both on the Paramo and on the savanna of Bogotá. Saw no lizard eggs or ants as in the paramo above the road to Calera a few days ago. The soil was very heavy, black, and probably acid as indicated by the presence of sphagnum in the wetter parts. Dugard has mentioned acid soil as a characteristic of paramo. Borero says never freezes or snows on the Paramo of Guerrero (altitude about 9800 ft.).



1950

PEARSON

1950

	Date	Time	Temp.	Humid.	Weather
	June 7	1 pm	31		no rain
	8	noon	32		Half cloudy, half sunny (scattered blue sky) very light in measurable sprinkles in afternoon.
	9		—		poured during night; sunny almost all day
	10		—		light showers in <del>afternoon</del> morning
	11				Day clear, clouded up at dusk. Heavy rain at about 9 p.m. and off and on all night. at least $\frac{1}{2}$ inch.
	12	noon	30		morning cloudy, clearing about noon. light sprinkles during night.
	13	"	31		Two immediately light showers in afternoon.
	14	"	35	60 $\pm$	Very light sprinkles in night. morning clear with settled clouds. no rain all day
	15	"	30	30 $\pm$	Shower during night but probably less than $\frac{1}{8}$ inch. mostly sunny with scattered clouds.
Cascarron	16	"	31		no rain
	17	"	27 (drizzle)		light drizzle began during night and continued till 1 p.m. then sunshine. Total precip. probably not more than $\frac{1}{4}$ inch. Evening clear.
	18	"	31		about $\frac{1}{4}$ inch rain during night. cleared about 8 a.m. afternoon clear & sunny
	19	1:30	31		cloudy except for 2 or 3 hrs in mid-day. see notes.
	20	noon	28 (sprinkle)		overcast all day. Occasional sprinkles.
	21	—	—		considerable sun. no rain
	22	noon	29 (cloudy)		about $\frac{1}{8}$ inch during night, morning overcast. afternoon mostly sunny.
	23	1 p.m.	32	30 $\pm$	no rain. morning cloudy, clearing about noon to scattered clouds.
	24	noon	32		no rain. morning overcast, clearing about noon. afternoon sunny.
	27	noon	29	80 $\pm$	morning cloudy bright. sprinkled in early evening, but just enough to settle dust. see notes
	30	early morning	20		light sprinkle at noon, just enough to settle dust, more at 7 p.m. but not more than $\frac{1}{16}$ inch.
Lajas	July 1	noon	29		light rain during night $\frac{1}{8}$ inch. cloudy at noon
		5:45 a.m.	19 (felt like coldest yet)		
	2	noon	29		Scattered clouds, about half sunny, half cloudy.
	3	1 p.m.	24		Rain in morning $\frac{1}{8}$ inch. no sun all day.
	4	noon	26 (overcast)	60 $\pm$	morning cloudy; afternoon mostly sun
	6	noon	31 $\frac{1}{2}$	40 $\pm$	morning all sunny
					scattered clouds, mostly sunny,
	7	noon	31	50 $\pm$	immeasurable light shower at sunset



1950

	Time	Temp.	Humid.	Weather
Camp Battery	July 9	-	-	sunny
	10 noon	31	40 $\pm$	sunny with scattered clouds.
	11			see notes
	12			overcast all day.
	<u>13</u>			Partly sunny, partly cloudy - bright.
Carbaton	15 noon	31	$\pm 30$	mostly sunny, with scattered clouds
	16 "	33	$\pm 40$	" " " numerous "
	17 "	32	$\pm 40$	morning cloudy bright, afternoon scattered clouds
	18 "	30		morning overcast with enough drizzle to settle dust and erase footprints. afternoon sunny.
	19			light rain at dawn, perhaps 1/16 inch
	20 noon	33	$\pm 40$	mostly sunny. Wind storm after supper plus 1/4 inch rain.
	21 2 p.m.	33	$\pm 40$	mostly sunny, a few clouds.
	22 noon	31	$\pm 30$	
	<u>23 noon</u>	33		overcast til about 3 p.m.
Villaniga	24			overcast, light sprinkles at dusk.
Chapparel	26			completely cloudy



# SPECIES ACCOUNTS

BIRDS

MAMMAL

REPTILE





P. PEARSON

1950

Species Accounts

## Colinus

- June 8 Saw one covey of at least 5,  $3\frac{1}{2}$  mi. S Villavieja, also 2 pairs. (may not have been ♂ + ♀)
- June 9 Hunting south of town about 5 p.m. saw quite a few quail in the pasture-thorn scrub country - mostly in small coveys. I get impression that there are more quail than there is whistling.
- June 10 Hunting at 7:30 for about half an hour heard calling from one direction, saw one pair sitting on a wall.
- June 11  $17\frac{1}{2}$  km. SE Villavieja. Saw 2 pairs on stone walls near camp. Heard calling in another direction. In afternoon saw one covey of at least 5. Savage caught a tiny downy young on June 7. Is sure it was a quail because mother flew off from it.
- June 13 continue to see coveys + pairs. Very little calling
- June 16 Being familiar with their haunts now, I think it possible to score up perhaps 8 pairs or coveys in  $\frac{3}{4}$  hour (most of time spent walking across open savannah between "islands" where the quail are). Yet we hear whistling only 2 or 3 times a day. Most of the coveys seem to contain  $\frac{3}{4}$  grown young, but this is only an impression.
- June 23 Flushed a small covey and picked on a smallish-looking bird but fired too soon and on dead center. Found ~~two~~ legs and two wings, each sprouting many new feathers.
- July 16 Here at Cerbatana have seen 2 singles, one pair, and one covey of 4. Have heard no singing
- July 17 Saw 2 more coveys, about 10 and 6.



1950

*Columbigallina passerina*

- June 11 17½ km SE Villavieja. Shot 1 (2020) playing tog with another.
- June 13 One killed today was laying.
- June 14 Late afternoon is best time to hunt these
- June 17 Shot a young one today (almost grown but juvenile plumage)
- June 18 ♀ 2076 was sitting on a low branch as I was stalking her I flushed 2078 (C. talpacoti?) who landed about 8 inches away from her - so close that I got both with one .22 amp.
- June 30 Got two good looks at a female incubating 2 eggs.
- July 10 Two nestlings in a nest of the mourning dove (Dove sp.)
- July 16 Shot a young Leptotila, still with downy belly.



1950.

*Forpus conspicillatus*

- June 11 Have been present in pairs small flocks near Villamejor as well as here (17½ km. SE Villamejor)
- June 16 I know of 3 fencepost holes and 2 of them are occupied by ♀ *Forpus*. One, can't see <sup>in</sup> the other ~~that~~ I could see one rather spherical egg at 2 p.m. When jacklighting at 8 p.m. the ♀ was in the hole and there were 2 eggs, one considerably larger than the other
- June 17 2069-2071 were taken with one shot while they were cavorting on the fence with about 5 others. Much chattering, aerobatics on the wires, jostling each other, etc. This was only a few feet from the two occupied post holes.
- July 3 Flushed a pair from alongside a hollow fence post. Inside the post was a young bird of some sort and eggs or egg shells of about parakeet size (too dark to see clearly)
- July 16 Local farm boy brought in 8 pin-feathered young
- July 22 Saw largest flock so far, ± 50



1950

*Crotophaga ani*

- June 17 Saw 2 of sp.? attempting copulation. Probably ani but maybe major.
- June 23 Two ♀♀ shot today out of a flock of 40 or more were laying.
- June 24 3028, 3029, and 3044 are part of one flock; 3032, 3033, 3034 another.
- July 17 Saw what were almost certainly C. ani (about 5) in same trees with about <sup>10</sup> C. sulcirostris. Good view but no specimens.
- July 20 Scared a flock of about 6 C. major out of a tree. In the top was a nest with 5 half grown young sitting on edges or on adjacent branches.
- July 22 In distinguishing between the 3 species of *Crotophaga*, besides size, thickness of bill, and iris; sulcirostris has a more sibilant note than ani, major more of a croak. Also, sulcirostris is more nervous and excitable, jumps around in bushes more when disturbed. Sulcirostris seems to be the most widespread and abundant.
- July 30 C. ani was more abundant along the road between Castilla & Yvao than sulcirostris.





1950

*Synalaxis albescens*

- June 13 Shot 2 in one clump of bushes, and another in a small bush within 2 feet of a nest (of thick sticks, domed, with side entrance) 2037 but no eggs in the nest. No singing - just ~~the~~ warning? chirps
- June 14 Shot 2 on same branch (2043, 2044). No sound
- June 15 Heard one today giving two-parted song: "We too" or "whit ooo" but could not collect it. Have not heard this song from the other 7 collected so far - only warning chirps or no sound
- June 23 Was puzzling over a short-tailed bird when it was joined by an adult *Synalaxis*. Thought I had gotten both in one shot, but the parent? (30308) was feigning and led me a merry chase. The parent's skull was immature; one of the long tail-feathers of the juvenile just sprouting.



P. PEARSON

1950

*Tyrannus melancholicus*

June 16 Frequently seen disputing with Muscivora  
for perches.



PEARSON

1950

*Stelgidopteryx* <sup>*ruficollis*</sup> ~~*maculosa*~~

July 17 One shot today was one of a <sup>two</sup> ~~four~~ sitting in same tree.



1950

*Cactus wren*  
*Carpodacus mexicanus*

- June 10 Have heard singing the last 3 mornings. Today saw 5 in the top of an organ pipe cactus. Some looked a little small, but none obviously young.
- June 13 Saw 1 with almost no tail (young or molt?). Others with tails.
- June 15 Usually seen in groups of 2 to 5
- June 25 Still in groups
- July 5 Shot one of a group. Was in very worn plumage. Saw another of a group of about 6 carrying nesting material.





1950

*Hylophylus flavipes*

- June 11 17½ km. SE Villavieja. Collected 3 in scrub at edge of savanna. All within 25 yds of each other. One a stubby-tailed young, another with young skull
- June 14 Shot a young one being fed by parent.
- June 15 Adult ♀ 2053 came from same thicket as yesterday's young 2047.
- June 18 Think I got another parent feeding young (2089)
- June 20 While picking up traps about an hour before sunset saw one vireo pursuing another rather persistently through the trees, back & forth. When I returned with my gun about 2 minutes later, I shot 2 vireos, 3004, 3005. These two were in separate trees paying no attention to each other. I hurried the dissection of these to go bat hunting, and in doing so may have missed the ovary of 3005, the one with immature skull.



D. PEARSON

1950

~~Sporophila~~ *rimata*

June 14 17  $\frac{1}{2}$  km SE Villavieja. Have only seen about a half dozen at this camp. Much commoner near Villavieja

June 23

July 16 Have seen flocks of about 6 several times here at Orbaton



Mammal



P. PEARSON

1950

*Syllivagus*

July 1

Have seen a few  $\frac{1}{2}$  to  $\frac{2}{3}$  grown individuals and shot a late-pregnant one. Sometimes when flushed they give a grunting sound.





REPTILE



P. PEARSON

1950

Cnemidophorus

- June 7 Caught by hand a pair of which one was holding other in its mouth by the side in front of back right leg. One was a ♂, one ♀ - quite large. Saw many others, none very small.
- June 8 Saw another pair, one biting right side of other in front of hind leg. Also many others seen.
- June 26 Saw one today considerably smaller than the 4 ♂ m. ones collected a while ago.
- June 29 Saw a large pair attempting or achieving coitus.



2

PEARSON, O.P.

MISCELLANEOUS LOCALITIES

(TETON, WYO.; LANDER CO., NEV.; GILA CO., ARIZ.)  
and CALIF. COUNTIES

AUGUST 1950 - NOVEMBER 1951

CATALOGUE NOS. 3248 - 3369

JOURNAL

SPECIES ACCOUNT

(Mammal)



# CATALOGUE





PEARSON  
1950

August 28, 1950  
5 mi East of Moran by road, Teton Co.,  
Wyoming

- 3248 ♀ Myotis lucifugus carissima <sup>no emb.</sup> Myotis considerable mammary tissue 94 x 40 x 10 x 15  
3249 ♀ Myotis lucifugus carissima <sup>no emb.</sup> Myotis considerable mammary tissue 91 x 36 x 10 x 14  
3250 ♀ Myotis lucifugus carissima <sup>no emb.</sup> Myotis (in Simon's house) no mammary tissue 94 x 41 x 10 x 15  
3251 ♀ Myotis lucifugus carissima <sup>no emb.</sup> 86 x 36 x 10 x 14  
3252 ♂ Myotis lucifugus carissima <sup>no emb.</sup> Myotis 2 testis 89 x 39 x 10 x 14  
3253 ♂ Myotis lucifugus carissima <sup>no emb.</sup> Myotis 2.5 mm 95 x 40 x 10 x 14

Anstin, 6145 ft., Lander Co., Nevada.

Aug. 31, 1950

- 3254 ♂ Corynorhinus rafinesquii above in old ore mill. anake.  
testis 10 x 6 1/2 mm. no fat.

2 1/2 mi. ENE Auburn (Placer Co.), 1200 ft., El Dorado Co., Calif.

Sept. 1, 1950

- 3255 ♂ Corynorhinus rafinesquii <sup>intermediate</sup> accessories small, 5 mm testis 10 x 6.5 Epidid 4 x 2, no fat. 98 x 40 x 11 x 37  
3256 ♀ Corynorhinus rafinesquii <sup>intermediate</sup> mipple med. no fat. Rt horn larger than left. 105 x 51 x 11 x 39

3257 to 3266 see Corynorhinus cards and AKP numbers 646-655

Manhattan Mines, 2000 ft., 2 mi NW Knoxville, Inyo Co., Calif.

Dec-21

- 3267 ♂ Corynorhinus rafinesquii <sup>intermediate</sup> accessories small, 5 mm, not tiny, much smaller than adults testis 7.9 mm. Epidid. very small, per grayish. Testis 4 mm. Epidid. 2 x 4.  
3268 ♂ Corynorhinus rafinesquii <sup>intermediate</sup> many sperm in Epidid smear. accessories 5 mm, about as above. Epidid. medium - large. Testis 5 mm, Epidid 5 mm.  
3269 ♂ Corynorhinus rafinesquii <sup>intermediate</sup> testis 6.8 mm. Epidid small. Testes small. accessories small but not tiny, probably about 5 mm.

Shidoo, 5700 ft., Inyo Co., Calif.

- 3270 ♀ Corynorhinus rafinesquii pallascens 97 x 46 x 10 x 35  
tupied & done in cold tunnel. mipple small. Fat. Sperm in smear.



D. P. PEARSON  
1951

Card # 3271 Cory ♀ caught Aetna Springs Sept 16, 1950. Banded 49-123706.  
Kept + fed until Nov. 15, then put into cold until Dec 11, when killed.  
Sections: no sperm, one medium foll. 36m, dominant but not really pub.-collected  
and discuss not really good.  
Concord, Contra Costa Co., Calif.

Feb. 18, 1951

3271 ♂ Lasius cinereus cinereus 127 x 52 x 9 x 15 testis 4m

caught by Albert Longshore, hanging on side of a box at base of a  
tree, 1 foot above ground. Was caught about Jan. 20.

Aetna Springs, 800 ft., Napa Co., Calif.

Sept. 16

3272 ♀ Corynorhinus rafinesquii caught Aetna  
fostered and kept in isolation until  
March 4, then kept in basement and fed in cage until  
28, no signs of copulation. Killed March 16. Banded C-161764  
Mipple small-medium. no corpora or large foll. seen under  
dissecting scope. In sections: 1 medium follicle, no sperm  
Kept Sept 16, 1950. Banded April, 1949. See also Cory card 3265

3273 ♀ Corynorhinus rafinesquii

Caught

Sept 16

fostered and kept in isolation  
until March 12, then kept in basement and fed in cage until 30. One  
♂ pursued her March 18. Killed March 21. Thin and fur  
mousy. Both horns uterine small, equal, translucent. no med.  
foll. or CL visible under dissect scope. In sections: only small follicles,  
no sperm. Number 49-123722. Born 1950, Kept Sept 16, 1950  
See also Cory card 3279

1 mi NE Sulphur Bank Mine, 1500 ft., Lake Co., Calif.

3274 ♀ Corynorhinus rafinesquii caught Sulphur Bank Dec. 17, kept  
in zool. cold room until March 17, then kept in cellar and fed,  
but didn't feed well. Died evening of March 23.  
uterus juvenile, ovaries with med. folls. (under dissecting scope)  
In sections: several medium folls. but none dominant or juicy. Numerous  
sperm in oviduct + uterus near tubo-uterine junction and in cervix.  
Vagina thickly stratified.

3275 ♀ Cory

49-123716

caught Sept. 16

fostered and kept in isolation until March 18, then  
put with ♂ on March 19 who pursued her. Males died about March 24.  
Killed her March 28. Born 1950, Kept Sept 16, 1950.  
uteri young, equal. Nothing seen in ovaries under dissecting scope.  
See Cory card #3278 In sections no large or medium follicles, no sperm.

Aetna Springs, 800 ft., Napa Co., Calif.

3276 ♀ Cory

C 161792

Taken from attic at Aetna on Dec 17, 1950. Kept in zoology  
cold room until March 17, when she was brought into  
cellar + fed. Killed March 28, 1951. Uterus adult, somewhat  
vascular. Nothing seen in ovaries under scope In sections: one big  
juicy follicle with intact germinal vesicle. Numerous sperm at tubo-uterine junction.

3277 - Card = ♂ Cory young

3277 ♀ Cory.

49-123719

Taken from Aetna on Sept 16, 1950. Kept in Zool Fed + isolated  
from males. Kept in Zoology cold room until March 18. Fed  
+ kept in cellar. Killed March 28, in good shape. Uterus young.  
Nothing seen in ov. under scope. See Cory card 3272.

in sections: no  
large or med. folls.  
no sperm



PEARSON

1951

Shell Beach, 2 mi NW Limeresse, Marin Co., Calif  
April 9,

- 3278 ♂ Sorex trombridgii montereyensis Testis 2 mm.  
107 x 50 x 13.5 x 10
- 3279 ? " 107 x 50 x 13.7 g  
testis 5 mm.
- 3280 ♂ " 123 x 57 x 13 x 9  
rotating, embryos 3 mm.
- 3281 ♀ " 115 x 55 x 14 x 9

1 1/2 mi. NW Limeresse, Marin Co

- 3282 ♀ Sorex vagrans vagrans pregnant, 7 embryos 7 mm.  
103 x 43 x 12 x 7
- 3283 ♂ " " " Testis 2 mm.  
103 x 43 x 12 x 6

1.3 mi. SE Limeresse, Marin Co. Calif

- 3284 ♀ Tadarida Rt. horn slightly swollen. Nothing conspicuous in ovaries. UG. sand.
- 3285 ♂ " " " testis 3 mm, accessories + epidid small.

Summit, 29 mi NE Globe, Gila Co., Arizona, April 20

- 3286 ♀ Pygmy muntjac 10.2 gms. ovaries small, no brood patch

April 21

- 3287 ♀ Eutamias dorsalis dorsalis no embryos.  
[172] x [44] x 32 x 18 51.8 g
- 3288 ♀ Neotoma albigula albigula no emb.  
207 x 88 x 29 x 24 55.5 g
- 3289 ♀ Peromyscus boylii rowleyi no emb.  
176 x 92 x 21 x 20 20.3 g.
- 3290 ♂ " " " testis 11 mm.  
185 x 95 x 21 x 19 24.3 g.
- 3291 ♂ " " " testis 11 mm.  
200 x 106 x 22 x 20 25.5 g
- 3292 ♂ " " " testis 11 mm.  
[150] x [58] x 22 x 19.5 24.7 g
- 3293 ♀ Peromyscus truei truei uterus post-partum  
182 x 89 x 22 x 24 22.5 g
- 3294 ♂ " " " testis 12 mm.  
192 x 96 x 23 x 23 24.0 g.
- 3295 ♂ " " " testis 11 mm.  
190 x 97 x 22 x 22 23.3 g.
- 3296 ♂ Eutamias dorsalis dorsalis testis 15 mm.  
212 x 89 x 33 x 20 57.8 g.
- 3297 ♂ " " " testis 6 mm.  
220 x 91 x 34 x 21 55.5 g.
- 3298



P. PEARSON

1951

Sammill, 5600ft, 27 mi. NE Globe, Gila Co., Arizona  
April 22

3299 ♂ Sceloporus3300 ♀ Eutamias dorsalis dorsalis3301 ♀ Neotoma albigula albigula

testes 5mm.

228 x 105 x 34 x 22 55.5g.

lactating. same house as 3288

320 x 136 x 33 x 27 173g.  
Pregnant, 2 emb. at term, 12 mm CR3302 ♀ Sylvilagus floridanus holzneri

lactating, not preg.

450 x 42 x 100 x 76

no emb.

3303 ♀ Sciurus aberti aberti

469 x 196 x 72 x 45

no emb.

3304 ♀ Sciurus aberti aberti

495 x 211 x 72 x 44

3305 ♂ White-breasted nuthatch

no brood patch. testes 5mm 17.7g.

3306 Total

3307

3308

April 233309 ♂ Peromyscus boylii rowleyi

testes 11mm.

196 x 92 x 21 x 20 26.5g

large embryos

3310 ♀ " " "

209 x 110 x 22 x 20 28.3g

3311 ♂ Peromyscus truei truei

testes 12mm

189 x 99 x 22 x 23 22.0g

3312 Urocyon cinereoargenteus <sup>scottii</sup> skull only, Pickens. Found in a  
woodpecker hole in fallen yellow pine.3313 ♀ Citellus variegatus grammurus 430 x 168 x 57 x 27. no emb.McMillan Mine 4500ft, 14 mi. NNE Globe, Gila Co., Ariz.3314 ♂ Corynorhinus rafinesquii pallidus 101 x 51 x 11 x 36 7.2g.  
epidid. conspic. accessories 4mm.3315 ♂ Corynorhinus rafinesquii pallidus 98 x 46 x 10 x 35 7.3g.  
epidid. conspic. testis 4½, accessories small, 4mm.3316 ♂ Corynorhinus rafinesquii pallidus 100 x 48 x 10 x 35 7.1g.  
epidid. conspic. testis 4½, accessories 3½3317 ♂ Corynorhinus rafinesquii pallidus 97 x 48 x 10 x 36 7.0g.  
epidid. conspic. testis 5, accessories only 4½.3318 ♀ Corynorhinus rafinesquii pallidus 100 x 50 x 10 x 34 7.0g.  
epidid. conspic. testis 5mm, accessories 5mm3319 ♂ Corynorhinus rafinesquii pallidus 103 x 50 x 10 x 36 7.5g.  
epidid. conspic. testis 5mm, accessories 5mm.3320 ♂ Corynorhinus rafinesquii pallidus 96 x 45 x 9 x 35 7.0g.  
V.G. small3321 ♀ Eptesicus fuscus pallidus 112 x 45 x 11 x 17 10.3g.  
no emb.3322 ♀ Eptesicus fuscus pallidus 115 x 46 x 11 x 18 13.8g.  
no emb.3323 ♀ Antrozous pallidus pallidus 122 x 45 x 13 x 30 16.4g.





P. PEARSON

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Sawmill, 5600 ft., 27 mi NE Globe, Gila Co., Arizona

3324	♀	<u>Antrozous pallidus pallidus</u>	brump. embryos. 117 x 46 x 12 x 30 15.5g.
3325	♀	"	U.G. plump, no embryo mar 120 x 49 x 12 x 30 15.1g.
3326	♀	"	U.G. stout but no embryo 121 x 50 x 13 x 31 16.5g.
3327	♀	"	both horns plump. 117 x 44 x 13 x 31 15.5g.
3328	♀	"	no emb. 115 x 47 x 13 x 30 15.1g.
3329	♀	"	U.G. tiny. 115 x 49 x 11 x 31 14.8g.
3330	♀	"	no emb. 116 x 44 x 12 x 30 15.9g.
3331	♂	"	testis 5 mm. 115 x 45 x 12 x 30 14.5g.
3332	♀	"	113 x 43 x 12 x 30 15.2g.

April 25 4050 ft.,  
Cassadore Spring, 23 mi. ENE Globe, Gila Co., Arizona

3333	♂	<u>Dipodomys merriami merriami</u>	testis 11 mm 252 x 150 x 37 x 13 43.2g. no emb.
3334	♀	"	212 x 120 x 40 x 13 26.7g. testis 10 mm.
3335	♂	<u>Peromyscus eremicus anthonyi</u>	187 x 99 x 20 x 19 22.6g. testis 13 mm.
3336	♂	<u>Peromyscus boylii rowleyi</u>	189 x 97 x 20 x 18 22.0g. Parous, no emb.
3337	♀	<u>Peromyscus eremicus anthonyi</u>	201 x 116 x 20 x 19 25.6g. testis 11 mm.
3338	♂	"	168 x 84 x 20 x 18 20.0g. no emb.
3339	♀	<u>Peromyscus boylii rowleyi</u>	209 x 107 x 22 x 21 29.3g. 3 emb.
3340	♀	<u>Peromyscus eremicus anthonyi</u>	182 x 93 x 20 x 19 24.5g. testis 5 mm.
3341	♂	Hooded oriole	24.0g. no brood patch
3342	♂	audubon warbler	11.2g. testis 3 mm.
3343	♂	<u>Pipistrellus hesperus australis</u>	76 x 29 x 6 x 13 3.2g. no emb.
3344	♀	<u>Pipistrellus hesperus australis</u>	3.3g.

April 26Sawmill, 5600 ft., 27 mi. NE Globe, Gila Co., Arizona

3345	♂	<u>Tadarida mexicana</u>	testis 5 1/2 mm 95 x 36 x 10 x 20 10.1g.
3346	♂	"	shot by Johnston testis 4 1/2 mm 98 x 38 x 10 x 19 9.0g.
3347	♀	<u>Sceloporus</u>	



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April 273348 ♂ *Euphidonax*

10.2 g. Testis 2 mm.

China Cove, Point Lobos, Monterey Co., Calif.3349 ♀ *Enhydra lutris nereis*

1206 x 279 x 203 x 30 x 20 48 lbs.

Found on beach May 31, frozen by Mr. Wilson. Fur partly slipping, mouth region chewed up. Removed from freezer June 2 and skinned on June 3. Skin as removed, very fat, weighed 10½ lbs. Considerable inguinal mammary tissue, in places 20 mm. thick. Stomach empty. a few acanthocephelans found by Marjette Voge. Some hemorrhage in liver region but no bullet holes found. Cause of death not known. Large fetus (see 3350) in right horn. ut. ovary without formed bodies, left ovary not located away mesenteries but all preserved. Placenta gray, kidneys large, lobulated, mottled with fat. Skin, skull, & skeleton.

*lutris nereis*  
3350 ♀ *Enhydra* (fetus of 3349)

skin, skull, and skeleton  
464 x 82 x 100 x 12 x 10 3.0 lbs.

In rt. horn. 3.0 lbs with mat fur. Eyes open.

San Joaquin Experimental Range, Calif.3351 ♂ *Sorex ornatus ornatus*

testis 6 mm  
97 x 35 x 13 x 8 7.6 g.

Caught in snake trap by M. C. Cohen. Brought in in alcohol. Caught April 1, 1951, skinned June 7.

June 16, 1951Manhattan Mines, 2000 ft., 2 mi NW Knoxville, Napa Co., Calif.3352 ♂ *Myotis evotis*

Testis 4.5 mm

82 x 36 x 9 x 20

3

Acton Mines, 1000 ft., Napa Co.3353 *Aneides*in upper bat tunnel, same place as *Aneides* last fall.Inverness, Marin Co., Calif.June 183354 ♀ *Eptesicus*

Lactating. Both horns much smaller  
ovaries small, no CL seen. In sections: no CL

3355 ♀

pregnant. Fetus 24 CR, forearm 13. No CL seen  
In sections: probable remnant of one corpus luteum

3356 ♀

preg. Fetus 24, forearm 14. No CL seen



3357 ♀ *Eptesicus* Lactating. Uterus completely regressed,  
No CL seen.  
Tilden Park, Contra Costa Co., Calif

June 22  
3358 ♀ *Microtus californicus californicus* SKIN + SKELETON  
~~171~~ 171 x 46 x 20 x 16 50.3g.  
marked RP5 and released, body length  
100 mm. at that time. Mom: nipples large,  
regura open, considerable mammary tissue,  
Present, 2 rt., 3 left. 7 mm. CL. Ovaries  
with large pink corpora, 11 rt. ovary, 9 left.

Marin Co., Calif.

July 10

3359 *Neurotrichus* 110 x 39 x 17 11g.  
caught by A.H. Miller in Marin Co., ~~last capture.~~

Merced Co., Calif.  
caught by C. Johanneson.

3360 *Zapus princeps pacificus* 217 x 138 x 31 x 13

mouth of Santa Ynez River, Santa Barbara Co., Calif

Sept. 17, 1951 (all caught Aug. 23, 1951 by T.M. Street)

3361 ♀ *Dipodomys agilis agilis* 288 x 173 x 42 x 15

3362 ♂ " " " 282 x 161 x 42 x 15

3363 ♂ " " " 310 x 180 x 43 x 16

3364 ♂ " " " 309 x 190 x 44 x 15

Leavine Canyon, 8000 ft., Mono Co., Calif. Oct. 6, 1951

3365 ♀ ~~*Peromyscus*~~ *Peromyscus* Running across  
162 x 84 x 21½ x 7½. road 3 p.m.

Dillon Beach, Marin Co. Calif.

Oct. 19, 1951

3366 ♂ *Reithrodontomys megalotis* caught by P.B. Leibel in  
127 x 67 x 16 x 13 x 12

Oct. 20

3367 ♀ " " internat. thin, no scars.  
132 x 72 x 16 x 12½



PEARSON

1951

Sage Hen Creek, U.C. Camp, 6300 ft., <sup>Merced Co.</sup> ~~Inyo Co.~~, Calif

Nov. 4, 1951

3368 <sup>♂</sup> Microtus longicaudus sierrae

3369 ♀ Eutamias

testes 5 mm  
157 x 56 x 21 x 14  
no emb. or scars  
203 x 81 x 30 x 18





JOURNAL



1951

1

Aetna Springs, Napa Co., Calif.

Sept. 16 Left 12:30 with Anita, Sissey Young, and kids. Stopped at Angwin and got 1 ♂ Cory in attic of stone winery (Hemphill same day got thysanodes in one of the college buildings). Then drove to Aetna Springs and found Cory in attic over kitchen: one young ♂ and 2 adult ♀♀ and about 8 young ♀♀, all banded. About 4 escaped, one of them being a male (judging by band on rt. wing). Kept all of them to use in mating experiments. In the Aetna Mines tunnel found one adult ♀ (banded) and 3 adult males not banded, all with big testes. The red-dirt tunnel that used to have the Peromyscus nest 75 yards back now has about 6 nests, all of shedded bark. Saw about 6 Peromyscus at the back end of this tunnel. Also looked in a new tunnel of Anita's further up the hill - a good tunnel but no bats.

Spent the night at the pool on Pope Creek - rained during night.

Manhattan Mines, Knopville, Napa Co., Calif.

Sept. 17 Catecombs had no bats except 1 Eptesicus in same crack as last year. Mangarito Hill had 6 bats, one of them an unbanded ♂ young Cory, the others ♀ Cories, some banded. Also missed two in this tunnel. Got a ♂ in the tunnel above Mangarito Hill and missed one. Nothing in OP tunnel. Missed one in the Knopville tunnel also. Home after lunch.

Was impressed by fact that almost all the Cories were awake, ♂ and ♀. One young ♂ was apparently



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tupid and one ♀. None fat. Took swears of ♀♀, but no signs of mating. [Kept all bats caught].

How come we keep catching unbanded ♂♂ at Actua Mines where we have banded so many young? Where are the missing males? Found an unbanded baby mummified in the Margarita Tunnel. May mean that this is a roost for the nursery colony that was in the 20-House Hole last spring. Seems interesting that no bats in the 2 best winter tunnels: Calaveras and O.P.

Forgot to mention that about 2 Cory escaped from the abyss branch of the 20-House Hole and one from the short tunnel on the south face of the 20-House Hole near where the RR track enter. Also there were 20± *Eptesicus*? in a high crack just across the abyss.

Home about 4 p.m.

Nov. 15 Put 7 Cory in zoo cold room (42°F). These are ones caught Sept. 16 and 17 at Actua and Manhattan and fattened up at home isolated from males.

Nov. 18 Left 1 p.m. with Anita & Carol for Marin Co. Raining.

Looked in 2 tunnels at end of Oak St. in San Anselmo (Bald Mtn.). Good tunnels but no bats. Looked in old R.R. ~~that~~ tunnel near fire station in Woodacre. This tunnel is about 1/2 mile long, timbered & with wood ceiling, dark and drafty. No bats seen although may have been many between board ceiling and roof of tunnel. Seemed like a good place



1951

for *Corynorhinus*. Then to Golden's barn at Liveress. The rearingling operations have not proceeded very far and will probably not effect the bats if finished before next March. Found two *Myotis calif.* under tin on stair landing, one torpid banded mottled *Corynorhinus*, and in the garage between beams one *M. yumanensis* and 1 banded *Tadarida*.  
 Left between Obena + Bolinas. Still raining. \*

Nov. 19 Went to the Bolinas tunnel but no bats. Then to Muir Woods to photograph, then to the Forks of the tunnel. Much of this tunnel knee-deep in water. No bats. Home 1 pm.

Nov. 20 Put Liveress bat into Zoo cold room

Very intense

calling by great numbers of spring peepers between Obena and Bolinas. Many hopping across (and squeaked) on road. also one or more *Rana aurora* hopping across road about 6:30 p.m. Two or more *Triturus*.

Marbatten Mines, 2000 ft., 2 mi NW Knoxville, Napa Co., Calif.

Dec. 21

Dec 20 Left 1 pm with Bledel + Anita for Acton + Marbatten. Found one ♀ torpid in attic at Acton but no bats in any of the Acton Mine tunnels. However two big *Arctopsyllus flaviventris*? in the upper tunnel about 75 feet back (right at the Rhiney cave-in). Several tiny ones about 1 inch long were there too but not collected.

Aimed Marbatten after dark and started most of the tunnels between 8 and 9:30, but not OK or





PEARSON

1951

Catacombs. Found two torpid ♀♀ in Mangamita tunnel, and 3 (2 ♀♀ and 1 young ♂) in 20-House Hill. Two awake escaped from tunnel just outside 20-House Hill. Night clear, moon almost full, lowest temp. 44° during night.

Dec-21

Looked into OP and Catacombs. Found 2 ♀♀ + 4 ♂♂ in OP tunnel and 1 My. thyroidea, all torpid. Temp. of tunnel 50°. In Catacombs 5 ♀♀ and 4 ♂♂ temp. 49°. Also found a young and an adult 2 in ~~the~~ 20-House Hill that had arrived since last night. Killed them at once (9 a.m.) but stomachs + intestines empty. A third one that had come in during the night (a female), now in Mangamita. almost all ♀♀ had milky drop of semen expressible. Got distinct impression that the tunnels weren't cold enough for good hibernation, and that the bats preferred cold places such as bottoms of vertical shafts opening up top. Catacombs at cold straight tunnel was 49°.

Released several in daylight by car. Several took same course to nearby oak tree, circled through its leafy branches, arched its trunk, then off just above, through, or even under the chaparral. One or more hung up in the chaparral. we were surprised at how low they flew.

Bled about 10 museum specials along the edge of chamise and grass - caught nothing - and one in the Knappells tunnel - 1 Per. truei.



1951

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PEARSON

On the way home between Mountbelle and  
Madera saw several dozen ~~large~~ woodpeckers  
along one stretch of road a mile or two long.

Skidoo, 5700 ft, Inyo Co., Calif.

Jan 1. Looked in one tunnel along the road at Skidoo. It  
was a long, cold, slightly drafty tunnel. Found  
one torpid ♀ Corynorhinus. While driving up out of

Jan 2 Death Valley at 6 p.m. saw many moths flying, temp.  
~~about~~ measured out car window was 47°.

Camped just north of Lone Pine at about 9 p.m.  
Very windy, temp. in low 40s. In middle of  
night (clear) temp. was 35° but at dawn 20°.  
at dawn saw a single bat flying from the valley  
toward the western foothills. When it became lighter  
we saw 2 tunnels in the hills about where the  
bat was heading. They were warm 58°, with  
many crevices; found no bats in them but could  
have missed many in the cracks.

Subway Cave, Shasta Co., Calif.

Jan 20 Left 1 p.m. with auto. arrived Subway 8<sup>+</sup> p.m.  
according to Parvisher the autumn has been very mild,  
last night one of the few cold nights of the year. Looked  
in Subway Cave briefly. Not many ticks or ice stalagmites. saw  
bats in north branch, which was rather drippy; the sleeping  
chamber much too wet for sleeping. <sup>Mumerous bats in crossroads</sup> off south branch. More flying.

Jan 21 Looked in Subway again; nothing in north branch; quite  
a few in south. Only 1 in the usual hibernation chamber (37°F)  
all the rest on high ceiling of cross road (temp 32°). all torpid.



PEARSON

Was surprised at the shortage of young bats. One male was very light, ears open, moribund. None kept.

In Parish Cave most of the bats were in the high-ceilinged part, only a few back in the stooping part of the tunnel. Temp. about  $33^{\circ}$  where bats were. Again few young bats. also another light moribund male.

One unbanded female in the south Ice Cave, kept.

Snow + sleet overnight, more snow and rain during the day. about 2 feet of snow had fallen on the hills between Burney and Redding. Even down at the 2000 foot ~~up~~ level there was a foot of snow and the road between Redding + Red Bluff had been plowed. No snow at Red Bluff, however. Home in daylight.

Knopville, Mono Co., Calif.

Feb. 1

Left 7:30 with Arast, Landry, Benson, Mrs Benson, Carl and Mary Koford for Knopville. Mary Benson, and Carl looked in Catacombs and Monzanita tunnel and found only 6 Cory, 2 of them banded. In Catacombs the females were in cold parts, the males in warmer. The rest of us looked in OP Tunnel (4 Cory) and 20-House-Hole (0 Cory).

Then drove back the road that goes back past the Catacombs to the end of the road and found one other



1951

large branched tunnel, not cold; no bats in it but might be good summer roost or night roost.

after lunch went to ~~Red~~ Red Elephant Mine for first time. Both shafts were full of water. Several old houses but not good roasts. Then went to Harrison Mine. The only <sup>tiny</sup> ~~shaft~~ found were two in a gulch well down below the old mill. Both were small ~~shafts~~ (adits) but one had 3 and the other 2 Cory; one of each was a banded one from Manhattan Mines.

Mary looked in the two Red Mine tunnels above the road and I looked in the one below the road. The entrance to this one ~~had~~ <sup>had</sup> caved in, leaving a just-entirely slit, but the cave-in had ~~not~~ dammed up the little stream that used to come out of it so that it is now waist-deep in water. Home about 10 p.m. All bats were banded & released except 1 Harrison Mine bat that escaped without banding.

Tilden Park, Contra Costa Co., Calif.

- Feb. 17 In late afternoon put 50 Sherman traps [30 by one, 20 by Anita] in grass and Coriaria on slope across from Camp Padre. a few signs of Microtus and brush rabbit.
- Feb. 18 Caught 3 adult Microtus and 10 Perithous. One Sherman held 2 Perithous, a ♂ and a ♀.
- Feb. 25 Put Sherman on slope across from Camp Padre. Mine all along edge of Artemisia, Anita is all in Coriaria.





P. PEARSON

1951

- Feb. 26 Total catch 3 Sorex vagrans (one of them way up on the edge of the artemisia), 5 Peromyscus maniculatus, 6 Reithrodontomys, and 1 Microtus. about  $\frac{1}{4}$  inch of snow and hail fell between 6 and 8 a.m.
- March 4 Put out a different line across from Camp Padre, both mine and Anita's in grass - Conium. Total 100 Museum Specials baited with walnuts.
- March 5 Ran traps and rebaited.
- March 6 Picked up traps. Total for two nights 30 Microtus, 10 Sorex vagrans, about 15 Reithro and about 4 Peromyscus.
- March 11 Put 50 Delusion live traps in conium-grass above camp Wilbourn.
- March 12 Caught 2 Pero (released) and 1 Reithro. Left traps out and set also 100 Museum Specials in conium and grass across from Camp Padre.
- March 13 Five live Reithros in the live traps and 7 in the snap traps, plus 8 Microtus, 5 Pero, and 6 Sorex vagrans.
- March 18 Anita and I put 50 live traps (Delusion) and 80 snap traps at 3 places in fields. Some Conium, some dense grass, and some artemisia slope.
- March 19 Catch was 1 Mus, no shrews, 2 Pero, 17 Reithro, and 8 Microtus. The Delusions in artemisia (about 35) caught only 1 mouse, a Microtus. Left traps set. Ran them at 6 and got 6 Microtus and 1 Reithro and 1 third-grown bird chick.
- March 20 In a.m. got 17 more Reithro, 7 Microtus, 2 Peromyscus, 1 Perognathus, 2 Sceloporus, and 1 Triturus and 1 song sparrow. Both Scelop were big males that had gone into



delusion-line traps had had gotten their hinds stuck in the 7-mm slots trying to get out. Their scales kept them from backing up.

Total for the 130 traps for 2 nights and 1 day was:  
35 *Peritho*, 21 *Microtus*, 4 *Peromyscus*, 1 *Perognathus*,  
1 *Mus*, 1 sparrow, 3 *Sceloporus*, 1 *Triturus*, and 1  
small brush rabbit. The latter was caught in a museum  
special by one hind leg (not broken) in dense *Conium*.

March 30 65 Sherrin + Benson traps in Tilden Park, half  
in grass-artemisia slope.

March 31 Night clear, light frost. Caught 1 *Perognathus*, 1  
*Peromyscus*, 3 *Sorex vagrans*, 7 *Microtus*, and  
10 *Reithrodontomys*. Sex ratio 9♂♂ to 1♀♀. Last week's sex  
ratio was 9♂♂ to 3♀♀.

April 1 Left out the 30 traps in the artemisia line and  
caught 1 *Microtus*, 2 *Peromyscus*, 1 *Sorex*, and  
2 *Peritho*.

April 2 Same line, caught only 2 *Peromyscus* + 1 *Perognathus*.

April 5 Thirty Delusion traps and 30 Benson in good  
*Conium*-grass in Tilden Park.

April 6 One *Peritho* ♀ in the Delusions and 2 (1♂ and 1♀)  
in the Bensons. Also 1 *Microtus* in the Bensons.

During the day 9 *Microtus* in the Bensons.

April 8 Four *Perithos* and 2 *Microtus* in the Delusions  
and 1 of each in the Bensons. Picked up the  
Delusions.

Left 1 p.m. with Bailey and Greenwood for Marin



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Co. put 35 muskrat traps in the grass-alder grove at the further shell beach and 15  $\pm$  in sedge-grass meadow along the main road where the Shell Beach road turns off. Greenold put out same.

April 9 Total catch (including Greenold's line) 7 Sorex, 15 Peromyscus, and 3 Microtus in the alder swamp and 2 Sorex, 1 Reithro and 9 Peromyscus in the grass-sedge marsh. Stopped at Mr. Golden's Barn at Limerick to look for bats. No Cory! No Myotis on stair landing. Only bats found were Tadarida in the garage. They were cold but able to scramble. Not able to fly.

April 11 Put 75 shrews out in Tilden across from Camp Podre in Cornium + grass, 6-7 p.m.

April 12 Three shrews (ornatus), 2 Peromyscus, 2 Microtus, 4 Reithro (all males). Left traps set.

April 13 Three Reithros (1 $\sigma$ ), 4 Microtus, 3 shrews (ornatus), 1 Peromyscus, 1 large  $\sigma$  Triturus, and 1 mole cricket.

Samwell, 27 mi. NE Globe, Gila Co., Arizona

April 19 Driving from San Carlos to ~~Casa~~ Sam Well saw a band of about a dozen collared peccaries. They had been hiding in a large culvert until we drove past. No baby ones. They were near Cassidore Springs in desert country but near the beginning of pines. Spent night on a front porch at Sam Well because of rain.

April 20 Went exploring in morning - mostly open, grazed yellow pine but oak and grassy on some ridges. Saw signs of



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gopher, squirrel, raccoon, and wood rat. One wood rat nest was constructed of twigs and horse manure - several bushes in size. Same rain in p.m. Put out about 80 Museum Specials baited with walnuts, mostly on oak - grassy ridge north of camp - quite rocky.

Looked for bats around the buildings at Sawmill at dusk but saw only one. Short jacklighting but saw nothing. Moon full.

April 21

Temp. down to  $-2^{\circ}\text{C}$ . In traps were 8 *Peromyscus* (3 of them truei and others maybe boylii) 1 young *Neotoma*, and 1 *Eutamias*. all in rocky places near top of ridge. Skinned in a.m. then got two more chipmunks in the traps and shot one lizard (Sceloporus). Day sunny with scattered clouds, temp. up to  $17^{\circ}\text{C}$ .

Jacklighting in evening. Toads trilling in evening. Caught 5 with phosgene in one of the small reservoirs.

April 22

Night clear, temp. down to  $-4^{\circ}\text{C}$ . Same trap line caught no *Peromyscus*, 2 *Neotoma*, and lizard (Sceloporus)

Went exploring in a.m. for better trapping terrain. Saw 2 white-tailed deer, shot one cotton tail, two squirrels, one chipmunk <sup>(torridus)</sup> and one w.f. nuthatch but found no trapping place that looked like it would give more than *Peromyscus*. Set about 60 museum specials baited with walnuts on the rocky - grassy ridge top NE of camp. Mostly stony with some grass, scattered oaks, large juniper trees, and occasional yucca.

Day temp up to  $18^{\circ}\text{C}$ .





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April 23 Traps held 4 Peromyscus (truei and boylii?). Night clear, temp down to  $-2^{\circ}\text{C}$ . Moon slightly past full. Drove to Globe and back after lunch. Saw 2 Citellus (collected one) between Summit and the main road to the north. Then stopped at McMillan Mine, 4500 ft; 14 mi. NNE Globe to look for bats. Looked in one nice long tunnel that was probably between  $50 + 55^{\circ}\text{F}$ . Found two torpid Eptesicus and 9 torpid Corynorhinus. Between the corrugated iron over shingle roof of one of 3 adobe buildings were  $50 \pm$  lively antrozoans. Collected some of them also. None of Cory fat.

Jacklighting after supper to Reservoir below Summit. No amphibians. Several small bats flying over the reservoir. Saw Jackrabbit.

April 24 Night overcast in early part and much warmer. Traps (same line as yesterday) held 2 Peromyscus. Skinned bats. Went to Casadere Springs at 5:30 and set 60 museum specials in the good desert near there (stone ~~sand~~ with opuntia, juniper, various cacti, shrubs etc.). Many bats flying at early dusk. Shot 2 (Hypodactylus). Jacklighted but saw nothing, although heard 3 self? owl and great horned.

April 25 2 Tupa and 14 Peromyscus of 2 or 3 species. Bats flying at daybreak. Then home to skin. Bat shooting at dusk over the Summit reservoir. Many bats flying - 2 or 3 species. Of 3 shot (2 by phositors) all were Tadarida. Jacklighted home and around camp but saw no mammals.



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April 26 Snow, hail, and rain from about 5 to 7, but only about  $\frac{1}{8}$ " which promptly melted when sun came out.

Put out 60 museum specials in open pine - short grass, baited with walnuts. Owl hunting after supper, heard several hunched but couldn't locate them. Temp 3° at 9 p.m., clear.

April 27 Clouded up during night, temp 3° at 5:30. Trapline had one trap sprung and one chipping sparrow. Looked for salamanders under stones and in big heap of decaying pine needles beside pool. Lots of earthworms, no salamanders.

### Tilden Park

May 1 Anta + I put 85 Sherman + Benson live traps in Tilden Park, some near beginning of dog run (Inspiration Point) and some north of Brant's 28-acre area near cattail pool along fire road. All in grass - corn - weeds. Set for Reithro

May 2 Total catch about 8 Microtus and 4 Peromyscus. Left traps out.

May 3 Rains during night. Total catch about 6 Microtus and 5 Peromyscus.

May 5 Put 60 live traps and 15 museum specials in grass - corn - weeds in 3 places along the Inspiration Point - Orinda road in corn - grass - weeds.

May 6 Caught 14 Peromyscus, 5 Microtus, 1 Reithro. Left traps set.



May 7 Caught 11 Peromyscus, 6 Urostitis, 1 Perognathus,  
1 Sorex trumb., 1 Reithro.

The last 320 trap nights have given 2 Reithros!

June 2 Drove to Point Lobos with family to pick up sea  
otter washed ashore at China Cone. It was frozen up solid  
in a fish storage house, so we wrapped it in a sleeping  
bag and drove to the Malpaso Creek boat house. Caught  
all but one of the bats there: 1 ♂ (may have been in side alley),  
11 ♀♀, 10 babies. Many of the young able to fly.

June 7 Banded colony of Cory in Golden's barn at Limerick.  
56 adults, (8 of these still preg.), 42 young. 23 percent of last  
year's pups young had returned and 74 % of the adults; 13 % of all  
were non-producers.

June 15 Drove to Bale Mill and Astra Springs with family.  
The Bale Mill Cory colony was present in the barn.  
Caught and banded most of them, but about 6 to 10  
got away. Termite spraying operations about ~~ten~~<sup>5</sup> or  
~~the~~<sup>6</sup> weeks ago may have disturbed them some.  
Most of the young were flying or near flying but  
one ♀ was still pregnant.

at Astra Springs the Mangers ~~to~~ said they  
were tired of the bats and this year had "sulfured"  
the dining room and some of the other buildings.  
Behind the kitchen chimney were hundreds? of Myotis  
yumanensis, and Antrozous was in the wall  
up near the entrance to the attic. Caught one Antrozous



Pearson  
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15

- a female with ~~a~~ nursing young. But no Cory in the attic. Then went up to Atwa Mines. In the two lower tunnels saw one banded ♂ Cory (escaped). In the upper tunnel in the front half was the breeding colony. Caught all except 1. Most of the young near flying age. Also a very spotted black Amelans at same place as last autumn in the upper tunnel. There were 22 adult Cory and 20 young.

Then swam in Pope Creek and drove to Manhattan Mines. A brush fire was burning on the west slope right at the mines and the first tracks were there, so we slept a mile or two further up the road. Saw many quail, <sup>several</sup> with just-flying young. Also deer, ground squirrels, jack rabbits. Weather hot.

June 16 Looked in the 20-house hole at Manhattan Mines. Found a few stray males and finally in a short upper tunnel open at both ends found a large cluster of ♀♀. at least a dozen escaped, probably 2 dozen. Most young were flyable. Surprised to find so few of the females banded from last year. Total 25 new adult ♀♀, 11 old banded ♀♀, 21 young ♂♂, 21 young ♀♀; total 36 adult, 42 young.

Then looked in O.P. tunnel, Mangano's tunnel, tunnel





many's east tunnel,  
above Manzanita, and the north tunnel at the end  
of the road. No more ♀♀ but one evotis in the  
latter tunnel. Then swam in Pope Creek and  
home supper time.

June 18

Left 4:30 with family, Jack Twentey, and Janet  
Anderson for Inverness. Found a new bat colony .5 mi.  
SE of Inverness Park in attic of house up steps on NW  
corner of side road. In attic were 2 major clusters of  
♀ Eptesicus with young, with ♂ Tadarida mixed in.  
Captured most but not all. When approached they tend to  
crawl instead of fly. They don't drop into the net like  
Cory. Banded ♀ Tadarida, 2 ♀ adult Eptesicus, 11  
young ♂♂ and 12 young ♀♀. Kept 2 lactating and  
2 pregnant females (most were lactating) and Twentey  
kept about 3 Eptesicus and 1 Tadarida. Released  
the banded ones on the porch of the house across  
the side road.

Then went to see Woody Wilhains at the old  
hotel near the center of Inverness. Found a  
colony of Tadarida in the ceiling on the top floor, south  
side, but couldn't get at them. At dusk Twentey  
netted Myotis californicus by standing on the roof  
and swinging at them as they flew past.

Then to Mr. Sordani's barn at 10 p.m. One adult  
Cory in the cluster of young. Four unbanded young  
were banded. Other band numbers of young were  
not read. Myotis yuman in garage room.

Home 2 <sup>a.m.</sup> ~~pm~~.



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Tilden Park, Contra Costa Co

June 20-21 Put 90 Spermone with ants about 5 p.m. in our Microtus area across from the golf course, some of them further up the hill than the best Microtus habitat. Many cuttings and runways; saw 3 Microtus and 3 nests while setting. Many runways spattered with white material, as mentioned by Brant.

Ran traps next morning and afternoon and the following morning. Total score (2 nights, one day; oatmeal bait)  
 11 Peromyscus maniculatus, 7 Reithro (some young, some adult), 3 Dipodomys deserti, 28 Microtus. One of the Microtus was one of our banded ones.

July 6 Put 16 Spermone in Tilden across from the golf course at 7:30 p.m. <sup>yesterday</sup> Baited with oatmeal. Grass now really dry. No piles of green cuttings as on June 20-21 when most of grass was dry but still enough green stalks for mice to cut. Found one Microtus nest under a stump and hand-caught two young in it, about 3-4 weeks old. Picked up traps this morning, only found 15. Catch 5 Microtus, 2 Pero, 1 Mus, 1 Reithro.

July 18 Drove to the Bolinas tunnel with Corinne and all family. Looked in the tunnel about 2 p.m. and found one torpid ♀ Coy and a cluster of about 65 awake. Caught ~~at~~ 58 of them (none banded) and banded them. Only 3 males and a half-dozen young females.



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Aug. 13 Put 88 snap traps in Tilden Park across from Camp Padre and also at a new place further south. Baited half with apple and half with walnut, 7 p.m.

Aug. 14 Picked up traps at 7 a.m. Large areas of the hillside growing to thick, tall, coarse, round-stemmed grass plus scattered commin have few mouse signs and few mice. More mouse signs near oats, finer grasses, thistle. Total score: 13 Reithro, 14 Peromyscus, 7 Microtus, 2 Sorex ornatus, 1 Mus, 1 Perognathus. Some of the Peromyscus were small grey juveniles, one part grey part brown. No small Microtus although one was pregnant.

Sept 26 Put 35 Museum Specials at 7 p.m. <sup>last night</sup> in Tilden at the Microtus-banding place. Baited with ~~oatmeal~~ <sup>oatmeal</sup>. Saw or heard several scurrying Microtus while setting and saw one Reithro or Mus. Two Microtus were caught before we finished setting. Great horned and <sup>owls</sup> nearby.

This morning total score was 8 Reithro, 1 Mus, 1 Peromyscus, and 9 Microtus. All except 1 of the 35 traps was sprung or held a mouse. Several had been dragged away by a larger animal. No evidence of breeding of either Reithro or Microtus, all in good shape. Some Microtus with considerable green matter in stomach despite fact that no green grass or herbs are visible in the area.

Dillon Beach, Marin Co.

Oct. 19 Left 1 p.m. with class for Dillon Beach (Benson's mammal class) in bus. Arrived Marine Station about 4:15 and set 36 Museum Specials in thick tall beach grass and



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very sparsely vegetated sand dunes<sup>(26 & 10 respectively)</sup>. Also 15 shermans in grass and sedge along creek about  $\frac{1}{2}$  mile east of Dillon Beach. At 9 p.m. ran the beach grass and sand dune mice and had 2 Microtus and 4 Peromyscus. Quite a few Microtus droppings in spots and indefinite runways. Numerous rabbit droppings and foot? tracks. Saw two jackrabbits while setting traps. Night clear, warmish, but windy.

Oct. 20 In morning 3 more Microtus, 2 Peritho, and 1 Peromyscus.  
Sage Hen Creek, V.C. Camp, 6300 ft. <sup>Nevada Co</sup> ~~Sierra Co~~, Calif.

Nov. 4 Arrived V.C. camp about 3:30 p.m. Nov. 3 with Grinnell Club. Set 13 shermans and 7 museum specials baited with malumta along the stream above the headquarters. Almost all set for water shrews - for which the terrain looked good. Also set 6 Schuylers for flying squirrels. Terrain about half snowy - half bare, the result of melting of about 4 inches of snow. Night calm, clear, below freezing soon after dark. Jacklighting after supper but saw no mammals.

Traps caught only 1 mouse, a Microtus (mountain?) on a log in stream. Heard coyote. Tracks of snowshoe or jack rabbit in snow and deer. During day saw several golden-mantles and chipmunks. Shot one chipmunk. Left 3:30 p.m., home 10 p.m.





SPECIES ACCOUNT  
MAMMAL



1951

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Corynorhinus rafinesquii

March 20 Heard considerable squeaking in the big cage in the basement after supper. One of the new Linsen males was pursuing a virgin ♀, who appeared only mildly cooperative (she later turned out to have no large or medium follicles). But in one of the other virgin females, who behaved more receptive. The ♂ approached her from the front (as he had approached the other ♀), assumed a rather close ventral a ventral embrace, then nuzzled her thoroughly and repeatedly all over the ventral surface, face, and forearms. No erection or intromission. She was hanging from the wire ceiling. She did not object by squeaking as did the other ♀. Occasionally he seemed to be trying to work around onto her back. Several times she flew away from him. He would set out to find her, but apparently could neither see nor hear her (she made no audible sound). He would often approach a torpid male and start nuzzling it but would become discouraged after perhaps 15 seconds of this with no response. He even approached and nuzzled a faintly-dead male hanging from the side of the cage. Frequently he would encounter the less-receptive female and resume his courting of her. While pursuing a female he made a twittering sound. Apparently the closest to copulation was one occasion when, after much front-nuzzling he worked around onto the back of the female. She was hanging by all four from the ceiling and was walking slowly across the ceiling with him mounting her from behind. No intromission, however, or pelvic struts. This continued for perhaps 10 seconds and resulted



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me of the "tail walk" of salamanders. The male seemed rather unskillful, and was further hampered by the fact that he had difficulty locating the female if she flew a few feet away from him. Occasionally she flew back near him when he didn't follow her. In the morning no sperm expressible from the ♀.

In the front embrace one definitely got the impression that the male was rubbing the female with his nose ~~glands~~ glands. A distinct batty odor was noted several times.



PEARSON, O.P.

PERU, S.A.

DECEMBER 1951 - MAY 1952

CATALOGUE NOS. 3370-3938

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SPECIES ACCOUNTS

BIRDS

MAMMALS

REPTILES





# Catalogue



1951

5 km. S. Nazca, 1700 ft, Dept. of Ica, Peru

Dec. 3, 1951

3370 ♀ Draconyx culpaena  $29\frac{1}{4} \times 9\frac{3}{4} \times 4\frac{5}{8} \times 3$   $4\frac{3}{4}$  lbs.  
Shot 8 A.M. accompanied by 2/3 grown fox. ~~foxes~~ lactating.  
Placental scars - 2 right; 1 left. Rat in stomach.

~~3371~~ ~~Lizard~~ 40 km. S. Nazca, 2000 ft, Dept. of Ica, Peru

3371 Lizard 20 km. N. Chala, Dept. of Arequipa, Peru 2000 ft.

3372 Frog

3373 "

3374 "

3375 "

3376 "

3377 "

swarming along small  
loma stream. many tadpoles also

12 km. SSW Arequipa, 8500 ft. Dept. of Arequipa, Peru

Dec. 5

3378 ♀ Llama guanicoe

Pregnant, fetus  $26\frac{1}{2} \times 4\frac{1}{2} \times 8\frac{1}{2} \times 2\frac{1}{4}$  Height at  
 $73 \times 9 \times 17 \times 4\frac{3}{4}$  shoulder 43

Dec. 6

3379 ♂ Phyllotis darwini rupestris

3380 ♀ "

testes 10 mm, sem. ves. large.

$201 \times 108 \times 24 \times 25$

2 tiny emb.; Ticks

$186 \times 94 \times 22 \times 24$

Rio Torata, 11,200 ft., 15 km. NE Torata, Dept. of Moquegua, Peru

Dec. 7

3381 Toad

3382 "

3383 "

3384 Tadpole

Dec. 8

3385 ♂ Bolomys berlepschii

3386 ♀ Phyllotis magister magister

3387 ♂ Phyllotis darwini rupestris

3388 ♂ Logidium peruanum

testes 9 mm

$159 \times 66 \times 20 \times 14$

no emb., no scars

$235 \times 127 \times 28 \times 26$

testes 9 mm

$212 \times 110 \times 23 \times 25$

embryo 30 mm CR

$675 \times 270 \times 90 \times 76$   $3\frac{1}{4}$  lbs.



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- 3389 Hummingbird - <sup>falls. 0.5 mm.</sup> taken at night on a nest in tunnel. ♀  
 3390 " <sup>ova up to 1.5 mm, numerous</sup> taken at night in tunnel. ♀  
 3391 Toad. Caught under bark at night  
 3392 Toad " " "  
 3393 Frog  
 3394 Tadpole  
 3395 Tadpole  
 3396 Tadpole

Dec. 9

- 3397 ♀ Ground tyrant <sup>ova 1 mm</sup>  
 3398 ♀ ~~Hummingbird~~ <sup>spine tail</sup> <sup>caught in mine tunnel at night</sup>  
 3399 ♀ Hummingbird <sup>skull immature. ova tiny</sup>  
 3400 ♀ " <sup>mine tunnel at night. Flew. Warm</sup>  
 3401 ♀ " <sup>ova 1/2 mm</sup> not saved. Caught in tunnel at night <sup>mine tunnel at night. Flew.</sup>  
 3402 ♂ Phyllotis darwini rufescens <sup>ova 1/2 mm</sup> 233 x 124 x 24 1/2 x 27 <sup>testis 8</sup>  
 3403 ♂ Phyllotis darwini rufescens 241 x 118 x 24 x 26 <sup>testis 8</sup>  
 3404 ♀ Cinclodes fuscus <sup>ova 2 mm. with 2 nestlings</sup>

Dec. 11La Cueva, 14,500 ft, Dept. of Mopango, Peru.Dec. 11

- 3405 ♀ Ctenomys opimus 285 x 76 x 40 x 7 1/2 lbs.  
 Vagina mostly closed. Nipples 5 mm long, with eversible.  
 Considerable mammary tissue. Uterus parous but no scars. Ovaries  
 with no big follicles or CL. Stomach contents green vegetable,  
 Humerus saved.  
 3406 ♀ Ctenomys opimus 275 x 82 x 39 x 8  
 Vagina not open; uterus thin, 1 mm. No ovars.  
 ovaries pale. No follicles or corpora lutea seen. ~~testis~~ <sup>Humerus</sup> saved  
 3407 ♀ Ctenomys opimus 300 x 93 x 42 x 8  
 Vagina not open. Nipples 7 mm long, with milk. 3 pr,  
 quite lateral. Uterus thick, 3 mm. No definite scars. Ovaries  
 pale, no large follicles or corpora. Uterus saved. Humerus saved.



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3408 ♀ Ctenomys opimus 282 x 80 x 39 x 7  
vagina not open. Nipples 5mm, no milk  
Two fetuses in rt. horn. Two corpora lutea in rt. ovary;  
none left, but some blood spots. Fetus 33 CR. Both ♂♂.

3409 Lizard

Cacochana, 15,200ft., Dept. of Puno, Peru  
Dec. 14

3410 Frog

Water 40°, air 1/2°

3411 "

" 60°, air 1/2°

3412 Phyllotis darwini chilensis in mine - no emb.  
205 x 96 x 26 x 28

3413 Tyrant in mine at night.

Rio Santa Rosa, 14,400ft., Dept. of Puno, Peru  
Dec. 15

3414 ♂ Phyllotis darwini chilensis

Testis 11mm, sem. sec. large.  
239 x 106 x 30 x 26

3415 ♀ Amblyomys sublineis

4 emb. - rt., 1 left, 7mm.  
156 x 49 x 22 x 26 transverse.

3416 ♂ Phyllotis darwini chilensis

testis 10, SV med. x 5mm.  
230 x 122 x 28 x 26

Rio Santa Rosa, 13,300ft., Dept. of Puno, Peru  
Dec. 16

+ SKEL

3417 ♀ Ctenomys opimus

315 x 85 x 44 x 7

vagina open, much inguinal fat, and axillary, scapular, & mesenteric. Uterus 3mm, furrowed, parous. Nipples small. Rt. ov. no large follicle - CL, left ov. with 1 med-large foll.

3418 Alodon berlepschii

128 x 58 x 20 x 11 ♂  
Uterus stout, cornu smaller, no eggs

3419 Eligmodontia puerulus hirtipes

141 x 74 x 24 x 18 ♀

3420 Frog

3421 "

3422 "

3423 ♀ Ctenomys opimus

320 x 90 x 43 x 7 no skin or skull

vagina closed, nipples tiny. Much fat. Uterus stout, 4mm, furrowed, parous. Rt. ovary with 1 conspic. foll. 1.5mm, reddish. Left ovary same.





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Pampa Arenullecta, 13,200 ft., Dept. of Puno

Dec. 16

no skin  
3424 ♀ *Cavia*

no skin  
3425 ♀ *Cavia*

2 bumps left horn, 1 on rt. ovary with CL of two ages. Bumps look reabsorbing.

(bump base of each horn, probably early implantation. Lactating.)

no skin  
3426 ♀ *Cavia*

no skin  
3427 ♀ *Cavia*

1 fetus (110 x 0 x 31) in rt. horn.

nipples large, milk; 3 places rt. horn, none left. 3 large orange cl. rt. ovary, 2 much smaller in left. Fetus 7mm, bump 15mm. nothing seen

Dec. 17

no skin  
3428 ♂ *Ctenomys peruanus*

34

no skin  
3429 ♂ "

abdomen full of worm larvae  
297 x 80 x 41 x 10  
Seminal vesicle much branched, 25mm. Testis 16mm.

sem. ves. much smaller than above,  
186 x 76 x 38 x 9  
15mm. Testis 16mm.

3430 ♀ *Ctenomys peruanus*

Vagina open. nipples 2 1/2 mm, nipples  
285 x 71 x 38 x 10  
Vagina 4mm, no scars. many worms in abdomen

5 km. NE Puno, 13,200 ft., Peru. Dec. 19

3431 ♀ *Antinomys sublineatus*

3432 *Anthopsis*?

worms about but no emb. or scars  
155 x 48 x 22 x 21

wing 2.02. Brood/patch area being refeathered. crop with clover leaves & large seeds and seed pods, grass heads, numerous ova up to 4mm, accompanied by other adult. [and several (at least 3) half-grown young nearby] New feathers sprouting on back. & these probably mother's because only of one adult

7 km E. Arequipa, 8800 ft., Dept. of Arequipa, Peru. Dec. 22

3433 ♂ *Phyllotis darwini rupestris*

3434 ♀ "

3435 ♂ "

3436 ♂ "

Testis 10mm. 56mm  
239 x 129 x 24 x 25  
no emb  
187 x 98 x 22 x 24 25g.  
testis 7mm, sem. ves. medium  
197 x 109 x 22 x 25 25g.

207 x 111 x 23 x 25 26g.

Salvador, 15,000 ft., 22 km. E Arequipa, Arequipa, Peru Dec. 23

3437 *Abodon ardivinus*

133 x 51 x 19 x 14 18g.  
testis 9 1/2 mm



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(km. 58)

no skin  
3438 ♂ medium tyrannos

testes 14 mm + 12 mm. associating with 3439

no skin  
3439 ♀ little "

ova up to 4 mm.

Huancayo, 54 mi. ENE Arequipa, 15,300 ft., Dept. of Arequipa

Dec. 25

3440 ♀ Arbiscampus boliviensis

caught by bird at 11 a.m. at bottom of mircha colony  
UG. ting 168 x 68 x 27 x 25 29 g.

Dec. 26 (as above but 15,000 ft.)

3441 Lizard

This and 4 or 5 young (see 3442-45) caught

3442 "

under stone. One seen under stone afternoon of

3443 "

Dec. 25 and others were seen under stone then.

3444 "

Still there & captured 8 a.m. Dec. 26. By AKP

3445 "

Dec. 27

3446 ♀ Lizard

3447 ♂ "

3448 "

3449 "

3450 Toad

under stones on flat

3451 "

"

3452 "

"

3453 "

"

Timopulco, 13,900 ft., 75 km W. of Puno

Dec. 29

3454 ♀ Phyllotis sublineatus

caught by AKP. mamm. trans. present.

165 x 50 x 23 x 23 50 g. 2 left, 1 right, 10 mm x 10 mm

3455 ♀ "

region open & scrub. Estrus? 143 x 49 x 22 x 20 31 g.

15 km. W of Puno, 13,000 ft., Dept. of Puno.

Dec. 30

3456 ♂ Mothura

sanded wing & leg. Testis 10 x 7. crop  
236 g. bulging with beetles,  
most of them 15 mm or less. a few  
small and one closer leg.



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3457 ♀ Hesperomys ducilla

no emb.

106 x 39 x 16 x 15 12 gms.

3458 ♀ Bolomys aureus

uteri stout but no emb.

167 x 67 x 19 x 14 27 g.

embryo 12 mm, 2 rt., 1 left.

3459 ♀ Phyllotis darwini chilensis

237 x 114 x 25 x 26 56 g.

5 km. W. of Puno, 13,000 ft., Dept. of Puno,

Dec. 31

testis 10, sem. ves. large, 23 mm.

3460 Phyllotis darwini chilensis 219 x 110 x 26 x 23 42 g.3461 ♂ Phyllotis darwini chilensis 227 x 109 x 26 x 26 60 g.

testis 12, sem. ves. large 35 mm impaled

5 emb., 3 rt., 2 left

3462 Akodon boliviensis 146 x 51 x 18 x 13 22 g.

4 km. E. Puno, 12,700 ft., Dept. of Puno

Jan. 1

3463 ♀ Phyllotis darwini chilensis

no emb.

45 g.

232 x 123 x 26 x 25

3464 ♀ Phyllotis darwini chilensis

no emb. uteri thin 23 g.

174 x 85 x 23 x 22

ut. stout but no emb. 45 g.

3465 ♀ Chroeomys jelaskii

186 x 74 x 25 x 21

3466 ♂ Akodon boliviensis

168 x 69 x 20 1/2 x 16 34 g.

testis 6 mm, sem. ves. large.

3467 ♂ Hesperomys ducilla

114 x 43 x 16 x 15 12 g.

4 km. E. Puno, 12,600 ft., Dept. of Puno Jan. 2

3468 ♀ Hummer.

On nest at night in cave. 6 1/2 g. Two eggs in first few days of incubation. Oviduct large, follicle up to 1 mm and 3 cl.

3469 ♀

no emb.

same species as above. On nest in cave at night. Two nestlings almost ready to leave nest. 7 gms. Follicle 1/2 mm.

3470 Toxomeris3471 ♀ Chroeomys jelaskii

uteri stout, no emb. mamm. traces

skull admet 85 x 70 x 24 x 18 46 g.

3472 Chestnut-crowned flycatcher

in cave at night with 3469 25 g.

3473 ♀ Baka musteloides

120 x 0 x 38 x 21 1/2 lbs.

uteri long. 2 emb. large 9 mm (1 rt. 1 left)

3474 ♀ Spine-tail?

skull imm., ovary tiny.

3475 Toad

3476 Snake



PEARSON

4 km. NW Pomata, 12,500 ft., Dept. of Puno, Peru

- Jan 3
- 3477 ♂ Phyllotis osilae osilae Testes 9 mm, SV med., 13 mm. 265 x 138 x 26 x 22 62 g.
- 3478 ♂ Phyllotis darwini chilensis Testis 11, SV large, 22 mm. 250 x 119 x 26 x 26 64 g.
- 3479 ♂ Chroeomys jelskii Testis 7, SV 14 mm. (large) 190 x 78 x 25 x 20 38 g.
- 3480 ♂ Phyllotis osilae osilae Testis 8, SV small, 8 mm. 245 x 127 x 25½ x 25 47 g.
- 3481 ♀ " " " Uterus inactive but no emb. 227 x 115 x 24½ x 23 74 g.
- 3482 Felia Cat skull, perhaps.

Jan. 4

- 3483 ♀ Phyllotis darwini chilensis Vagina not open. Uterus slender, no emb. 220 x 115 x 25½ x 26 36 g.
- 3484 ♂ Hummer caught on nest in cave at 2 p.m. one other captured from nest. Both good flyers. 8½ g. testes 1 mm
- 3485 3 skulls from 3 owl pellets taken at hummer cave. 3 g.t. hatched owls seen at same place, although pellets were from owl eggs. See for Andinomys.

Jan. 5

- 3486 ♀ Galea musteloides 1 emb. left horn, 18 mm, 2 resorbing (1st. left) 230 x 0 x 40 x 24

15 km. S. Plave, 12,600 ft., Dept. of Puno,

Jan. 6

- 3487 ♂ Phyllotis darwini chilensis Testis 12, SV large 26 mm [206] x [92] x 26½ x 26½ 54 g.
- 3488 ♂ Phyllotis darwini chilensis Testis 12, SV large 217 x 116 x 27½ x 28 53 g.

Hacienda Sorapua, 12,600 ft., 33 km S Plave, Dept. of Puno

- 3489 ♂ Hippocamelus 40½" x 4" x 11½" x 6" 39 lbs. Testes 1½"
- 3490 ♀ " 48½" x 3½" x 13" x 5½". 50 lbs minus guts (intestines, liver, stomach, blood, and uterus with 8 CR & fetus.

Hacienda Paurumani, 13,000 ft. Jan. 7

- 3491 ♀ Perdia

shot in barley field. Barley in crop. no blood patch, ova 8 mm orange, left smaller than, possibly a CL also.

Lago Loricota, 15,000 ft., Dept. of Puno, Peru. Jan. 9, 1952

- 3492 ♂ Ctenomys spinosus { seminal vesicles 25 mm, slender  
Testis 11 mm.  
no fat. 330 x 98 x 45 x 9 ¾ lb. ♂





P. PEARSON

1952

Hacienda Pucurani, 13,000 ft., 40 km. S. Puno, Dept. of Puno  
Jan. 8, 1952

3493 Toad

in stones along Rio Huanque.

3494 "

"

3495 "

"

Pampa Vraiccha, 15,000 ft., 120 km. S. Puno, Dept. de Puno

3496 Toad

Jan. 9

wandering out in Festuca - tree desert in daylight

5 km. E. Lago Sucko, 14,600 ft., Dept. of Moquegua

3497 ♀ Tyrannus

SKELETON

Jan. 10

Large lat. fall. 4 1/2 mm. <sup>no blood/pitch</sup> many of them

1.8 lbs. Cecum 150 x 25 on each side. Crop bulging with blossoms + leaves. One of two with 3498

3498 ♀ "

2.0 lbs. no blood/pitch although possibly dry, only remains. Over numerous up to 4 mm.

Jan. 11

3499 ♂ Geositta?

on two census area

24g. scaly brood/pitch. Skull adult. Uterus 5mm.

3500 ? Earth-creeper?

15 1/2 g. In Festuca - stone desert. skull imm.

Jan. 12

3501 ♂ Elanoides forficatus

caught by A.K.P. Testes 9, SV large

171 x 81 x 24 1/2 x 20 23g.

3502 ♀ Abrodon andinum

caught by A.K.P. Uterus stone &amp; ovaries large,

127 x 45 x 19 x 13 15g. no env.

3503 Liolaima

stomach - anna 35mm, about as small as any seen. Ovary about 1mm, yellow CL also, oviducts fairly large.

3504 ♀ "

on two census area. Stomach - anna 75mm. Stomach with a few flies + ? vegetable? / seeds.

35

Vagina not open, nipples 3mm, no milk

3505 ♀ Ctenomys opimus

278 x 80 x 42 x 8 0.5 lbs.

Considerable fat. 2 fetuses rt. horn, 1 left; Fetuses 36mm @ 12. no CL in left ovary, possible 2 in rt.

Jan. 13

3506 Toad

no skin

From station 21 of census area at 11:30

3507 ♂ Ctenomys opimus

3/4 lb. 312 x 87 x 44 x 9. Testes 9 x 7. Semmes 18mm, shiny, not functional. Not fat.



5 km E Lago Sucho, 14,600 ft., Dept. of Moquegua  
~~Finca La Primavera, 13,000 ft., 40 km. S. of~~  
~~Dept. of Puno, Peru. Jan 13, cont'd~~

- 3508 ♀ Oteromys opimus juv. From underlying rock, Vagina not open. Uterus 212 x 65 x 33 x 6. 117 g. slender, Y-shaped, 1 cm. diam. ovaries small. stomach with vegetable pulp. H&S not prime.
- 3509 ♀ " " no skin " " shot by ACP 10 a.m. Vagina closed. nipples 2 mm, 280 x 76 x 38 x 8 0.6 lbs no milk. Uterus 3 mm, no scars; ovaries without big follicles. or cl
- 3510 ♀ Elymodontia puerulus hirtipes 147 x 69 x 22 x 18 13 g. ~~no milk~~ Ut. slender, no scars or milk. ~~nipples 2 mm~~
- 3511 ♀ Oteromys opimus Jan. 14 no skin shot on census area 20 yds from Station 2, 310 x 88 x 39 x 0.6 lbs. 10 a.m. Vagina closed, nipples long, 6 mm, milk efferable. 3512 juv. shot same day 5 yds away, same burrow system and another juv. same size seen 5 yds away. 3 pr nipples, anterior 2 pr. quite latered mammary glands only about 2 mm. thick. Uterus 2 1/2 mm, 1 scar each horn. No large foll. or corpuscle either horn, but one brown spot each ovary.
- 3512 ♂ " " no skin shot 11 a.m. 5 yds from above, almost certainly [215] x 61 x 31 x 6. 87 g. young of 3511 + Black pelage of juv. Tail with dorsal + ventral mane, giving compressed effect: testis 4 1/2 mm. Sem. ves. tiny, 4 mm x vegetable pulp in stomach.
- 3513 ♀ " " no skin shot 9:45 a.m. on census area 10 yds from Station 15. 303 x 91 x 41 1/2 0.5 lbs. no fresh digging Vagina open. nipple 5 mm, no milk. Trace of mammary tissue. Lined "young". 1 Fetus left horn, swelling 20 mm. but probably reaching. ut. on with no large or med. follicles, left ovary with 4 CL. section for accessory CL.
- 3514 ♂ " " no skin shot a.m. on census area 15 yds from 3. no digging. 312 x 90 x 43 0.8 lbs. testes 11 1/2 mm, Sem. ves 25 mm but slender
- 3515 ♂ " " skeleton trapped overnight on census area at Station 11, by top of 313 x 99 x 44 0.8 lbs. Testis 11 mm. Sem. ves 21 mm, slender. Tanlin Macabe gghh trap.
- 3516 ♀ " " Jan. 15 shot 9 a.m. 24 yds from (18). 74 268 x 38 x 38 0.4 lbs. Vagina open, creamy fluid exudes. nipples 6 mm, milk efferable. Mammary tissue 2 mm thick, milky. Placental scar in left horn, probable old CL in left ovary. nothing in right. ♀ looks small and dark.



P. PEARSON  
1952

5 km E Lago Sucha, 14,600 ft., Dept. of Inogonegna

3517 ♂ Ctenomys opimus

shot 11:30, 13 yds from station (D), mites, lice,  
205 x 62 x 30. 76 g. + plasm.  
Testes 4 mm, stomach with pellet material

3518 ♂ " "

shot in a.m. near bus. testes 11 mm,  
318 x 99 x 46 0.8 lbs.  
sem. ves. 24 mm, slender.

skin, skull + skull.  
3519 ♂ Dusicyon

Jan. 16

stomach with lizard, bird, + viscera? bird + ven.

40 7/8 x 15 1/4 x 6 1/2 x 3 3/4 13 7/4 lbs.  
Census area, trapped in a.m. 4 yds. from station 11.

3520 ♀ Ctenomys opimus

286 x 85 x 39 0.5 lbs.

vagina open. Nipples 3 mm. No milk. Pregnant.

One right horn - 41 mm CR. Left horn resolving lump, 16 mm.  
one corpus luteum in right ovary; one in left. Right ovary separate.  
Fetus a ♂.

3521 ♀ Ctenomys opimus

shot near bus.

295 x 88 x 43 0.6 lbs.

Fleas. Vagina closed. Nipples 5 mm. No milk.

Uteri with indistinct placental scars. Rt. ovary with  
1 medium foll. Left ovary with 1 med. foll.

No mammary tissue

3522 ♀ " "

shot down the road.

258 x 74 x 38 0.3 lbs.

vagina closed. Nipples tiny, less than 1/2 mm.

uterus 1.5 mm. juvenile. Ovaries with small follicles.  
Rt. arm with possible bullet wound, healed, from  
our previous visit. Longest rt. toenail 15 mm. Longest left toenail 8 mm.  
many lice.

3523 ♀ " "

shot down the road

270 x 86 x 39 0.4 lbs.

vagina not open. Nipples 3 mm. No milk.

uterus 2.5 mm, smooth, no scars probable scars - 1 rt, 2 left.  
Ovaries with small follicles.

3524 ♀ " "

shot in A.M. down the road.

293 x 88 x 39 0.5 lbs.

vagina closed. Nipple 6 mm. Some milk.

Placental scars - 1 left, 1/2 rt. Rt. ovary with  
1 medium foll. Left ovary with small follicles.

3525 ♂ " "

shot in A.M. in stream bed down road.

321 x 103 x 45 0.8 lbs.

Testis 10 mm, fleshy. Seminal vesicles 22 mm, thin.  
Testis saved. Lice saved.



1952

5 km E Lago Sucho, 14,600 ft., Dept. of Inogues 11

Jan. 17

3526 ♀ *Ctenomys opimus*

shot in a.m. by AKP.

247 x 75 x 34 147g.

Vagina closed, nipples tiny. Uterus thin, 1 1/2 mm, no scars, immature. Ovaries with small-med. follicles. Stomach with ground up roots &amp; leaves.

3527 ♂ " "

shot in a.m. by AKP. Testis 10 mm;

296 x 83 x 42 0.7 lbs.

sem. ves. 15 mm., slender.

3528 ♀ " "

shot in a.m. by AKP. Vagina stuck shut but

295 x 90 x 42 0.7 lbs.

operable by tractor. Nipples 5 mm, no milk. Inguinal fat + mesenteric etc. Pregnant 1 swelling rt. horn 10 x 16, left horn with probable faint placental scar. Rt. ov. with 2 CL 2 mm in diam. approx 3 large foll. Left ov. much smaller, 1 med. foll. Embryos in clear sacs, neural fold stage.

Jan. 18

3529 ♂ *Ctenomys opimus*

shot in a.m. by AKP. Testis 12 mm;

323 x 90 x 45 0.8 lbs.

seminal vesicles 25 mm, thin.

3530 ♀ " "

shot by AKP. Vagina closed, nipples 4 mm.

271 x 83 x 40 0.5 lbs.

no milk. Possibly 1 placental scar each horn. No mammaries trace.

3531 ♂ " "

shot by AKP in AM. 10 ft. from 3532

196 x 59 x 30 77 g.

Vegetable pulp in stomach. Testes 3 1/2 mm.

3532 ♀ " "

shot by AKP 10 ft. from jun. 3531

280 x 88 x 40 0.4 g.

Vagina closed, nipples 6 mm, milk. 1 scar each horn

3533 ♀ " "

vagina not open. Much shot

240 ± x 75 x 37 0.25 lbs ±

Jan. 19

3534 ♂ *Fulcrum*

testes 9 mm, white, spherical, tubules distinct.

snout-anus 88, belly quite orange,

stomach with crimson flower parts.

3535 ♂ " "

not saved.

snout-anus 90, belly pale orange, pre-anal transverse line bright orange. Stomach with 2 crimson blossoms and a large beetle. Testes 9 mm, spherical, white, tubules easily visible.

3536 ♀ " "

snout-anus 79 mm. Belly faintly speckled orange without the pre-anal enlarged scales of 3534 + 3535. Stomach with one crimson blossom and large leaf of *Nototricha*, and one small fly. Ovaries with follicles 1 1/2 mm and yellow CL.





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1952

3537 ♀ *Isolacerta* not saved.

snout-aural 78 mm. Belly spotted gray but not yellow, ~~and~~ pre-aural patch not enlarged. Stomach contents leaves & blossoms of *rusticum*.  
 Testis 2 mm, 5 in one ovary, 4 in other, also small orange cl. Oviduct flat, 3 mm wide.

3538 ♂ " not saved speckled young, snout-aural 36 mm. Testis 1 mm

3539 ♂ " juvenile 32 mm SA

Pampa Hermita, 14,500 ft., Tintupoca, Dept. of MoqueguaJan. 203540 ♀ *Heperomys ducilla*

preg. 1 left, 4 at; 16 mm CR.  
 127 × 39 × 16 × 17 26g.  
 much more tissue, 4 embryos (Bump) at 11 mm  
 216 × 93 × 27 × 25 76g.  
 testis 9 mm.  
 187 × 85 × 26 × 25 48g.

3541 ♀ *Anasomys boliviensis*

3542 ♂ " "

Volcan Tintupoca, 17,000 ft., Dept. of Moquegua, Peru3543 ♂ *Abodon boliviensis*Jan 21

135 × 52 × 21 × 12 29g. <sup>pt.</sup> testis 10 mm.  
 spot behind nostril but near subnasal.

La Cruz, 14,500 ft., Dept. of Moquegua3544 ♂ *Phyllotis darwini chilensis* 223 × 112 × 27½ × 28 61g.

intermaxillary no emb.

3545 ♀ *Phyllotis darwini chilensis* 209 × 110 × 25 × 25 36g.1 km. N Tarata, 11,000 ft., Dept. of Tacna, PeruJan. 233546 ♂ *Phyllotis magister magister*

testis 12 mm., accessories large.  
 264 × 131 × 28 × 24 71g.

3547 ♀ " "no emb."

242 × 124 × 27 × 26 58g.

3548 ♀ " some memory tissue placental scars, no emb.

246 × 125 × 28 × 25 55g.

3549 ♂ " " "

testis 13 mm, SV very large  
 274 × 129 × 29 × 26 93g.

2 km. N Tarata, 11,500 ft., Dept. of Tacna, Peru3550 ♂ *Bolomys berlepschi*

167 × 72 × 22 × 15 34g. <sup>testis 11 mm, SV very large, caught in digestion</sup>

Jan. 253551 ♀ *Phyllotis darwini rupestris*

Group embryos, 4 left 1 at.  
 195 × 102 × 23½ × 22 28g.  
 testis 8, SV 20 mm.

3552 ♂ " " "

212 × 113 × 23 × 24 35g.

3553 ♂ *Phyllotis magister magister*

testis 11 mm, SV very large  
 270 × 143 × 29½ × 25 75g.  
 no emb.

3554 ♀ " " "

265 × 134 × 28 × 25 58g.



PEARSON

1952

3 km. N. Tarata, 12,200ft; Dept. of Tacna, Peru.  
Jan. 25

- 3555 ♂ Phyllotis testis 11, SV 25 very large. 274 x 143 x 30 x 25 72g.  
 3556 ♂ Phyllotis darwini rupestris testis 9, SV very large, 28mm. 208 x 107 x 23 x 26 39g.  
 3557 ♀ Bolomys herlepsi 3emb. left horn, 11mm CR 158 x 64 x 21 x 13

4 km. N. Tarata, 12,800ft; Dept. of Tacna, Peru  
Jan. 26

- 3558 ♂ Hippocamelus 54 in. 5" Testis 2 1/2" Height at shoulder 32" 54 x 54 x 14 1/2 x 6 1/2  
 3559 ♂ Marmosa 208 x 108 x 14 x 22 32g. accessories large testis 1mm  
 3560 ♀ Phyllotis magister 296 x 154 x 28 x 26 65g. no emb.

P.S. looked at 5 ♀ coarse Phyllotis from 11,500'; none preg or lact.

- 3561 ♂ Phyllotis magister magister testis 11mm, SV large. 300 x 156 x 32 x 29 79g.  
 3562 ♂ Phyllotis darwini chilensis testis 10, SV very large 231 x 118 x 25 x 26 52g.

4 1/2 km. N. Tarata, 13,200ft; Dept. of Tacna, Peru

- 3563 ♂ Bolomys herlepsi testis 10 151 x 60 x 21 1/2 x 14 33g. SV large

5 km. N. Tarata, 13,500ft; Dept. of Tacna, Peru

- 3564 ♀ Phyllotis darwini chilensis 242 x 125 x 26 x 26 44g.

20 km. NE Tarata, 14,600ft; Dept. of Tacna, Peru

Jan. 28

- 3565 ♂ Phyllotis darwini chilensis testis 10, SV large, 20mm. 229 x 118 x 26 1/2 x 27 52g.  
 3566 ♀ " " " Preg, fetuses 22mm, 2 at left, 1 resorbing rt. 222 x 111 x 25 1/2 x 25 51g.  
 3567 ♀ Peromyscus lemniscatus Liver enormous, 2 large fetuses in 196 x 52 x 27 1/2 x 25 102g.  
 3568 ♂ Akodon andinum right horn, 29mm CR. left ovary no CL, right ovary with 3 CL, large, one of them 4mm diam. stomach with swellby eggs. Some mammary tissue. testis 9mm, SV very large. 133 x 51 x 20 x 14 21g.  
 3569 ♀ Akodon andinum no emb. 126 x 49 x 18 x 14 15g.



P. PEARSON

1952

25 km. NE. Tarata, 15,200 ft., Dept. of Tacna, PeruJan. 29.3570 ♀ Phyllotis darwini chilensis

3 uterine scars, mammary scars

213 × 106 × 27 × 25 47g.

3571 ♂ Akodon andinum

testes 6 mm, SV small

112 × 46 × 18 × 13 12g.

2 km. N. Nevado Lirio, 15,300 ft., Dept. of Tacna, PeruJan. 30

+ SKEL

3572 ♀ Abrocoma cinerea

V.G. fairly stout but no emb.

215 × 62 × 25 × 25 80g.

3573 ♂ Ctenomys opimus

testis 11 mm, fleshy; SV 28 mm, thin. Trapped by hand.

303 × 83 × 45 × 8 0.8 lbs.

Capazo, 14,300 ft., 123 km. S. Puno, Dept. of Puno, PeruJan. 313574 ♂ Ctenomys opimus

shot noon on pampa. Testis 10, SV thin, 20 mm.

305 × 90 × 42 × 8 0.9 lbs. ant. 10.

Pampa de Ancomarca, 13,700 ft., 123 km. S. Puno, Dept. of PunoFeb. 13575 ♂ Ctenomys opimus

trapped by belly - testes 9 mm, SV thin.

301 × 80 × 42 × 8 0.8g.

3576 ♀

"

"

trapped by hind leg. nipple 5, 2 fetuses, 1 in left horn. 12 mm CR, 1 in ut. horn resorting to CL cavity.

296 × 87 × 41 0.4g.

3577 ♀

"

"

trapped by anus. Much about. 10. 2 embryos

270 × 68 × 42 0.7g.

rt. horn 45 mm, 0 left 2 CL. rt. ovary. Both emb. ♀♀

3578 ♀ Phyllotis boliviensis

mammary tissue. 12 alveoli scars

213 × 90 × 26 × 26 79g.

3579 ♀ Hesperomys lucilla

V.G. thick but no emb. or scars.

103 × 39 × 16 × 15 9½g.

Between Capazo and Ancomarca, 14,500 ft., Dept. of Puno3580 ♂ Ctenomys opimus

testes 9 mm, white, SV thin, 25 mm. Caught by belly.

290 × 82 × 43 0.7 lbs.

3581 ♀

"

"

trapped by anus. nipple 7 mm, some milk but don't look used.

270 × 78 × 40 0.5 lbs.

little mammary tissue. 2 scars left horn, none rt; no CL seen.

Pampa de Ancomarca, 13,700 ft., 123 km. S. Puno, Dept. of PunoFeb. 2, 19523582 ♀ Phyllotis darwini chilensis

uterus thin. no emb.

212 × 112 × 27 × 23 37g.

Ancomarca, 13,800 ft., 123 km. S. Puno, Dept. of PunoFeb. 2, 19523583 ♂ Phyllotis sublimis  
Hesperomys?

testis 9 mm, SV large, 18 mm.

148 × 47 × 21 × 23

32g.



P. PEARSON

1952

Pampa de Capazo, 14,300 ft., 123 km. S. Plane, Dept. of Puno, Peru  
Feb. 3

3584 ♀ Elgmodontia puerulus hirtipes 168 × 80 × 23 × 19 28g.  
 no emb. March 1941. Wound.

3585 ♀ Phyllotis sublineis

154 × 44 × 20 × 23 66g.

trapped by belly in Festuca - Tola.

3586 ♀ Ctenomys spinosus

268 × 86 × 40 × 4 lbs.

mipple 4 mm, some milk, but don't look used. 2 scars  
 rt. horn, 0 left; no cl seen.

3587 ♂ " "

shot on soccer field. Testes 9 mm, 50 thin,

290 × 87 × 40 0.5 lbs

14 mm.

3588 ♂ Ctenomys spinosus

Testes 4½ mm, 50 thin. Trapped in Festuca - Tola.

230 × 70 × 33 × 121 g.

3589 ♀ " "

shot on soccer field. Vagina closed. Grooves like ordinary  
 mipple 5 mm, no milk; 1 fluke rt. horn, 25 mm cl, 1 CL  
 [275] - 73 × 37 rt. ovary, partially 1 left. 0.4 lbs

3590 " "

shot on soccer field; an immature spinosus.  
 Testes 2 mm, no seen. Vagina closed  
 228 × 60 × 35 mipple tiny.

15 km. S. Mazocruz, 13,200 ft., Dept. of Puno, Peru  
Feb. 3

3591 ♂ Pardis

one of a pair. Testes 15 × 11. Cropp with green  
 blanda + tips of wings. Scaled testis + belly skin. Patch  
 associate of 3591. Oviduct very large; ovarian follicles  
 30, 20 × 10 mm. + smaller and one recently collapsed  
 follicle. No brood patch. Crop as above plus a few  
 blossoms. Scaled belly skin.

3592 ♀ "

one of a pair. Other not gotten. No brood patch.  
 Oviduct very large, follicles 30, 22, 11, plus  
 recently ruptured follicle. Scaled piece of belly  
 skin in Bonin's. Crop as above + and gran seed pods.

3593 ♀ "

above. No brood patch. Testes 10 × 11 mm.

3594 ♂ "

Piece of skin oiled in Bonin's. Crop with blossoms  
 + lady beetles

2 km. N. Mazocruz, 13,000 ft., Dept. of Puno, Feb. 4

3595 ♀ Pardis

One of a pair. No brood patch. Ova 30 × 22 mm.  
 Crop with green leaves.

Pampa de Capazo, 14,300 ft., 123 km. S. Plane, Dept. of Puno, Peru  
Feb. 4

3596 ♀ Lizard

76 mm SA ova about 2 mm.

3597 ♂ Lizard

no. anns 26 mm, belly faint green, pre-anal plates orange.  
 Testes white 9 mm, almost spherical, tubular  
 malle. Scaled testis + belly. Captured 3 days 2 when  
 killed.





P. PEARSON  
1952

arequipa, 13,700 ft., 123 km. S. Plave, Dept. of Puno  
Jan. 31

3598 Toad

3599 Toad

Mazucay, 13,000 ft., Dept. of Puno, Peru  
Feb. 4

3600 ♂ Bolomys berlepschi

Testes 10 mm, SV very large  
150 x 61 x 21 x 13 26g.

3601 ♂ Hesperomys lucilla  
60 km. S Plave.

Testis 8, SV large, 13 mm.  
[97] x [19] x 17 1/2 x 18 14g.

Pampa Aneullecata, 13,200 ft., Dept. of Puno, Peru  
Feb. 5

3602 ♂ Stenomys peruanus  
scrotal, 19 mm. SV. 50 mm. Worms in abdomen.

flea + "earwig". Fur very worn. Testes  
317 x 79 x 41 1.0 lbs.

3603 ♂ " no skin

testis 20 mm, tubules not marked; SV 35 mm  
295 x 84 x 41 1.0 lbs.  
much bigger than anything seen in opimus so far.  
Abdomen with great masses of tapeworms?

3604 ♂ " no skin

297 x 81 x 41 0.8 lbs. Fur on back  
and tail much worn as in 3602, worms in abdomen.  
Testes 18 mm, accessories 33 mm, x 2 1/2 mm.

3605 ♀ " "

267 x 78 x 38 0.5 lbs  
nipples 1 mm, vagina closed. 4 bumper embryos left horn, 1 rt.  
4 orange CL left on, 1 rt. no worms

3606 Stela  
Galea

scrotum big black & conspic. Testes  
230 x 0 x 41 x 24 globular, 21 mm,  
epidid. very large, SV. linear, 150 mm. long,  
6 mm. wide. Left testes in scrotum but not rt.

3607 ♂ " "

230 x 0 x 41. Scrotum black but testes  
not scrotal. SV 110 mm, testes 20 mm. Epidid. huge.

3608 ♂ " "

Scrotum big black & conspic.  
230 x 0 x 40. Testes spherical, 20 mm,  
retractable; SV very long & cystic as above.

3609 ♂ " "

testes 22 mm; SV. 155 x 5 mm.  
235 x 0

3610 ♂ " "

231 x 0 testes 18, SV large.

3611 ♂ " "

200 x 0 testes 7 mm, SV 20 x 1/2 mm.

3612 ♀ " "

Vagina closed, 1 fetus each horn, 1 conspic.  
205 x 0 yellow CL embryonic, 2 1/2 x 3 mm each CL.  
Smellings 13 mm but probably resorbing. Nipples  
tiny.

3613 ♀ " "

nipple 5, no milk, vagina open, 2 orange CL left ovary  
3 mm. diam., and 1 left, 1 resorbing fetus left horn,  
217 x 0 and 2 big fetuses left horn, total length 85, foot 22.  
one of one ♀



P. PEARSON

1952

Hacienda Paumotu, 12,800 ft., 40 km. S. Puno, Dept. of PunoFeb. 6

- 3614 ♀ Phyllotia darwini chilensis 222 x 114 x 26 x 26 44 g. 4 knuff. emb. rt. horn, none left. Consider. warm tissue.
- 3615 ♂ Phyllotia osilae osilae 239 x 120 x 26 x 22 58 g. testis 11 mm, SV 24, large.

Rio Huanque, 13,000 ft., 50 km. S. Puno, Dept. of PunoFeb. 7

- 3616 ♂ Musciopala ciceria testes 10 mm. Feeding 2 young in case. 21 g.

15 km. W. Puno, 13,000 ft., Dept. of Puno, PeruFeb. 9

- 3617 ♂ Hesperomys lucilla testes 7, SV fairly large, 10 mm. 113 x 40 x 15 x 16 17 gms.

- 3618 2 copulating pairs of beetles. Compare with crop content of cochranis 3 follyz swelling, some warm tissue.

- 3619 ♀ Phyllotia osilae osilae 210 x 96 x 24 x 22 43 g. no emb; vagina large.

- 3620 ♀ Phyllotia darwini chilensis 200 x 100 x 26 x 24 35 g.

- 3621 ♂ Liobunus broad antenna 88 mm. Belly yellow, pre-anal plates orange, wings. Testis 11, sphere. Stomach with locust insects - caught by AKC during day. Placental scars, some warm tissue.

- 3622 ♀ Akodon amoenus 168 x 60 x 20 x 13 33 g.

Feb. 10

SKEL.

- 3623 ♀ Nothura

shot at km. 50, 13, ... ft.; accompanied by another, alone a perdia nearby. 2 recent CL, one brand new, no large follicles. No brood patch. Gave bird to Carl.

70 km. E. Puno, 14,300 ft. Dept. of Puno, PeruFeb. 10

- 3624 Nothoprocta sinu.

In company with 3625 & 3 others, one of which was larger. 210 g; wing 160. No brood patch. Testis 4 mm

- 3625 ♀ " "

230 g. No brood patch. Wing 158. Ovary with only tiny follicles.

(km. 61, 13,800')

Feb. 10, 1952

- 3626 ♂ Huemul

53" x 5" x 1 3/4" x 6" length at shoulder 28" horn hard, testes 2 1/2"



1952

18

(H. waylaco, 54 km. ENE Arequipa, 15,000 ft., Dept. of Arequipa)

Feb. 15

3627 ♂ *Dussumiera*

crushed  
shot by C. Koford, an adult ♂. Testes 20 mm.  
sawd pieces of testes, nothing else.

13 km  
3 km. W. Vilque, 13,300 ft., Dept. of Lima, Peru

Feb. 17

3628 ♀ *Amphispiza*

stomach contents. 3 seen rt, 2 left.

[69] x [60] x 24 x 24 64 g.

ovary trans; broad embryo 3rd 2 left.

218 x 100 x 24 x 21 40 g.

testes stant, no emb. Hids not permissor

167 x 67 x 20 x 14 29 g. body

stomach trans. 6 fetuses 19 mm CR, 3+3. 7. body

158 x 58 x 18 x 14 38 g.

3629 ♀ *Phyllotis osilae osilae*3630 ♀ *Polioptila amoenus*3631 ♀ *Alcedo boliviensis*

Feb. 18

3632 ♂ *Phyllotis osilae osilae*

testes 10, SV very large.

219 x 96 x 24 1/2 x 21 55 g.

Feb. 19

3633 ♂ *Myiozetetes*

shot 6:30 a.m. in company with 3634. crop empty,  
testes 18 x 12. Belly possibly slightly depaupered,  
more so than 3634, slightly wrinkled.

3634 ♀ "

largest foll. 5 mm, no C.F. seen. no sign of  
brood patch. Oviduct large.

3635 ♂ *Neotoma ebriosa*

testes 8, SV 18 mm, fairly large.

170 x 73 x 23 x 19. 33 g.

Feb. 20

3636 ♂ *Myiozetetes*

Flushed off nest of 6 eggs at 10:30 a.m.  
Belly skin edematous, pale, not vascular, little  
deplumation. Skin marked x at tip of sternum. 1 1/4 lb.  
Testes 18 x 10 mm. Crop with mostly clover, 3 small lady? beetles,  
some culms like small garlic.

Feb. 21

3637 ♂ *Myiozetetes*

no obvious brood patch. Testes 17 x 10. shot  
about 6 a.m. Crop almost empty.

3638 ♀ "

shot 5:30 a.m. One of a pair: Ovary inactive,  
largest foll. 2 1/2 mm. No obvious brood patch  
Crop empty.

3639 ♀ "

no brood patch. Oviduct large, abdomen full of yolk.  
Ovary with large ruptured follicle (from shot?), collapsed follicle  
measures 12 mm; another slightly smaller collapsed  
follicle largest intact foll. 5 mm, yellow. no C.F. seen.  
Probably about to lay.

3640 ♀ "

shot 7:30 a.m. Possibly wrinkled brood patch but  
not obvious. Oviduct large but not as large as 3639.  
Ovary robust, largest foll. 7 mm. warm near ovary.



1952

19

3641 ♂ *Nothoprocta*.

shot near coral 5:30 p.m. while giving the  
whin chirp. Pair had been seen here frequently.  
0.9 lbs. Belly wrinkled - reticulate but not  
defeathered, slender or ectomys. Testes 17x10  
Crap full, cloner, small testes, other leaves.  
Caught by M.K.

3642 Snake

85 km. W. Puno,12,100ft, Dept. of Puno, PeruFeb. 24, 1952no skin  
3643 ♂ *Lagidium*

Testis 32 mm, SV long not conspicuous  
no milk. Fat 220x105 mm, pigmented but no  
fur.

no skin  
3644 ♀ "no skin  
3645 ♂ "

Testis 20 mm, SV large. Looks youngish  
Brown-headed young. Testis 10 mm, SV quite small.

no skin  
3646 ♂ "

Vagina closed. Muff large but no milk.  
Testis 310x145 mm, furry.

no skin  
3647 ♀ "82 km. W. Puno, 14,000ft, Dept. of Puno PeruFeb. 253648 ♀ *Phyllotis darwini chilensis*

Caught by A.K.P. primary tissue. no milk.  
224 x 114 x 26 x 27 48g.  
caught by A.K.P. Testis 11 mm, SV very large.

3649 ♂ *Akodon boliviensis*

162 x 65 x 19 x 14 35g.

Feb. 27

3650 Toad.

Under stone near water.

Feb. 29March 1

1.2 lbs.

3651 ♂ *Nothoprocta*

600g. Total length (to tip of feathers)  $13\frac{1}{4}$ ".  
Wing 196, length of bill 26, width of mandible 27, tip of bill to  
back of head 64. Brown of back feathers slightly richer.  
Testis 19x13. Part of penis projecting from cloaca. Shot 9  
a.m. standing on back of 3652 ♀. Saw brood patch in brownish  
and cloacal region in pinnal to show penis etc. and testis.  
No obvious brood patch. Crop with green seed heads large green of brown  
fruits, large beetle, green. Penis partly  
1.3 lbs.

3652 ♀ "

688g. total length  $14\frac{1}{2}$ ", wing 206 mm. Tip of bill to  
back of head 70, width of mandible 28, length of bill 30. no  
obvious brood patch. Shot 9:20 a.m. Crop empty. Shot  
shortly after being stood on by 3651 (see notes). No obvious  
brood patch, certainly little defeathering and no maculosity  
Large leathery egg in lower oviduct 45x30. Nept largest 20 mm  
and nept 10 mm. One very large collapsed foll. and other smaller  
but quite conspicuous. Saw ovary + piece of brood patch.





P. PEARSON

1952

82 km. W. Puno, 14000 ft., Dept. of Puno, Peru.

- March 5  
 3653 ♂ Chiroornis jelskii by Carol. Testes 7, SV large, 15 mm  
 178 x 75 x 25 x 21 38 g.  
 3654 ♂ Neotomus ebrius testes 9, SV large, 25 mm.  
 190 x 77 x 23 x 17 55 g.  
 3655 ♀ Lizard ovaries large, numerous follicles up to 2 mm, all  
 72 mm SA, no color. pale, not yellow. No CL.  
 3656 Toad.

- March 7  
 3657 ♀ Nothoprocta shot alone while giving long call above waterfall.  
 Blasted by hornet. Some yolk, oviduct large. Cropp  
 with beetles, seed pods, 5 thick white roots. Nasal 30 mm,  
 tip of bill to back of head 71 mm.

- 3658 Lizard.

March 9

- 3659 Lizard

- 3660 Toad.

- 3661 "

- 3662 ♂ Lizard

- 3663 ♂ "

Caught by Carol in trap. Belly sulfur, back speckled,  
 orange anal plates. S-A 77 mm. Testes 7 mm

Speckled back, NA 92 mm. Orange anal plates,  
 belly/pale yellow. Testes 11 mm., spherical.

- 3664 ♀ "

N.A. 80 mm.  
 Ovary with white follicles to 3 mm.

March 11

- 3665 ♂ Lizard

- 3666 ♂ "

- 3667 Nothoprocta

Belly sulfur, back speckled. S-A 92 mm.

Testes 13 x 10. Orange pre-anal plates

Belly sulfur, back speckled, pre-anal plates

orange, SA-76 mm. Only one testis, pink, 8 mm.

One of pair, weighing 205 g, Bill 29 mm, head 69

690 g. 1.6 lbs. "Defeathered" area 23 x 45,

wrinkles, but not thick or vascular. Oviduct very

large; large yolk ovum in ovary 30 mm, at

least 2 large CL, no medium yellow follicles.

Cropp with large beetles, some leaves & seed pods.

Shot at 10:15 a.m.

- 3668 ♀ Chiroornis jelskii

- 3669 ♂ Chiroornis jelskii

- 3670 ♀ Lizard

6 early, 4 at 2 left, 27 mm CR.

170 x 70 x 23 x 19

Testes 8 mm, SV 14 mm, med. large.

163 x 71 x 23 x 21

31 g.

SA 82 mm,

Belly mottled orange, no pre-anal orange scales.  
 Rt. ovary with many follicles up to 2 mm., left  
 ovary much smaller (fewer follicles)

- 3671 Frog

in mouse trap near waterfall



P. PEARSON  
1952

82 km W. Puno, 14000 ft., Dept. of Puno, Peru

March 12

3672 ♂ *Mothoprocta*

ovoid pair. 600g. Wing 202, tail 25 mm.  
Brood patch area thick, loose, reticulated but not  
obviously edematous. Testes 20x11. Eggs  
with 2 beetles green seed pods

March 13

3673 ♂ *Phyllotis punctatus*

testis 11, SV large, 15 mm.  
210 x 83 x 25 x 22 67g.

3674 ♂ *Neotomys elricus*

testis 10, SV large, 22 mm.  
189 x 71 x 22 x 17 45g.

3675 ♀ *Phyllotis sublimis*

placental scars  
183 x 58 x 21 x 21 48g.

March 14

3676 Front-eyed frog

In pool in small running stream in dry forest

3677

" " "

" " "

" " "

" " "

3678 Striped toad

March 16

3679 ♀ *Phyllotis pictus*

2 embryos, 1 left; head, not pinned.  
183 x 76 x 23 x 22 37g.  
no embryos. corpora lutea. 3 mm not pinned

3680 ♀ *Phyllotis pictus*

161 x 69 x 21 1/2 x 20 26g.

3681 ♀ *Ph. pictus* ?

3 rt., 2 left.  
192 x 81 x 24 x 22 53g.

3682 ♀ *Chocomyia jelskii*

6 left; 1 rt. embryo. 30 mm CR.  
178 x 74 x 23 x 19. 61g.

3683 about 20 tiny toads of 3+ species - all packed up in net sack at 11 a.m.

March 20

3684 *Mothoprocta* embryo

from nest #4

3685 Tiny toads

about 10 used in main + B + W picture

Timopoleo,

82 km W. Puno, 13,800 ft., Dept. of Puno

March 24

3686 ♀ *Mothoprocta*

719g. shot early afternoon. maxilla 26 mm.  
no trace of brood patch. Eggs in oviduct  
no large follicles but large CL. 4 CL, smallest 12 x 9,  
rather shaped.

3687 ♀

761g. shot early afternoon. no brood patch.  
maxilla 30 mm. 3 large ova, 18, 24, 24, and  
graded smaller ones. no CL seen.

3688

"

602g. shot in early afternoon. maxilla 28 mm.  
no distinct brood patch. Single large ovum 27 mm,  
7 CL of graded size, smallest one about 11 x 4 mm.  
2 others possibly smaller. Eggs of this and preceding  
2 full; black beetles, caterpillars, grasshoppers, only a few green plants etc.



1962

March 25

3689 Toad

3690 "

3691 ♀ Jizard

9-A length 87 mm. Captive 4 days. Belly, pale, pre- and scapula not orange or enlarged. Mites on hind leg. Left ovary: 1 yellow follicle 4 mm, next largest much smaller, 3 mm, white. ov. saved, and oviduct. Rt. ovary not found.

Huayllarico, 15,500 ft; 57 km. ENE Arequipa, ~~mi. W. Puno~~, Dept. of Arequipa, Peru

March 303692 ♂ Felis ~~proline~~

39 x 16 1/4 x 5 1/4 x 2 1/2" 874 g.

Tucapallca, 13800 ft, Dept. of Puno, Peru

3693 ♂ Nothoprocta

April 1 bought from Indian 2 males. Reticular brood patch, not vascular nor extensively defeathered. 561 gms., bill 24 mm., testes 22 x 13 mm. Crop with red berries (Ehedeia?)

3694 Nothoprocta embryo.

From nest #5 at 8:30 a.m. Tinted.

3695 "

April 2

From nest #7 at 2 p.m. Wiggled &amp; gasped.

3696 "

April 3

From nest #6 at 6 p.m. yesterday.

~~3697 Nothoprocta~~~~Shot at 7:30 a.m. 60 yds from nest #6~~

3698 ♀ "

Shot 7 a.m. going "Eee-arr", 300 yds W of nest #6. 635 g. maxilla 26. No brood patch. Bill to end of mouth 39 mm. No brood patch. One large follicle 26 mm, oviduct large, but no large CL, 8 smallish CL.

3699 ♂ "

Shot off nest #7 at midnight. Drawing of brood patch. 506 g. max 24 mm, Bill to end of mouth 37 mm. Brood patch much defeathered, wrinkled. Crop with black beetles, grasshoppers, caterpillars, a few red Ehedeia fruits. Testes 18 x 10 1/2. Small testes + B.P.



P. PEARSON

1952

3700 ♂ *Mythoprocta*

shot off nest #6 at 6 p.m. 444 gms.  
 wing 23 mm, bill to > 34 mm. Brood patch extensively  
 defeathered, no draining. Crop with feathers, seeds, 3  
 caterpillars (smooth), 1 greenish grey sprouting seeds,  
 small green fruits. Both tails shot.

3701 ♀

shot near nest #6 (60 yds) at 7:15 a.m.  
 593 gms. Bill 40, mandible 27 mm. No  
 brood patch. Eggs in oviduct, 7 CL seen  
 moving, some quite large; no large yolk follicles.

3702 ♂

Flushed 8 a.m. 607 gms. wing 27 mm, bill to  
 angle 37 mm. Brood patch not defeathered but  
 definitely retracted + thick posteriorly. Testes  
 20 x 12. Sprouting feathers on back, fat.  
 Crop with sprouting seeds

3703 *Phyllotis sublineis*

Bump ends. 1 left, 4 rt.  
 167 x 56 x 20 x 23

♀

3704 *Nesperomys ducella*

testis 7 mm

118 x 37 x 17

♂

Hacienda Pichpichani, 8 km. NWHuacabani, 12,600 ft., Dept. of Puno, PeruApril 7, 19523705 ♀ *Ctenomys*

537 g. 1.0 lbs. 305 x 84 x 39  
 Vagina stuck shut. Nipples med., 3 mm. Much mesen-  
 -teric fat. Preg. 1 embryo rt. horn 40 mm CR. 3 CL  
 in rt. ov. and 3 left - Coelomic Cysterna

3706 ♀

458 g. Vagina open. Nipples med. 3 1/2 mm.  
 0.8 lbs. 310 x 78 x 37 3 emb. left horn, 38 - CR  
 3 CL left ov., none rt.

3707 ♀

420 g. Vagina open, nipples largeish, pale, 5 mm,  
 0.7 lbs. 310 x 85 x 38. milk expressible.  
 3 lera. nipples. Faint placental scars, 2 rt. 2 left  
 no CL seen macroscopically. Ovaries saved.

3708 ♀

451 g. Vagina open. Nipples pale, 4 mm, no milk.  
 1.0 lbs. 325 x 85 x 39 2 emb. left horn,  
 1 rt., 44 mm CR. Rt. ov. with 2 CL, left with 1, mostly  
 gone. Ovaries saved, left with uterus.

3709 ♀

663 g. Vagina open, nipples pale, 4 mm. milk exp.  
 1.3 lbs. 316 x 80 x 39 4 fetuses left  
 horn, none rt., CR about 70 mm. fully haired, or  
 122 x 35 x 21 35 g. Left ov. 2 CL, none rt.  
 Ovaries saved, left with piece of uterus. Embryos 2 ♂♂ 2 ♀♀

3710 ♀

1.1 lbs. Vagina closed, nipples 4 mm, bare around posterior pair,  
 563 g. 308 x 77 x 37 only a trace of milk.  
 2 embryos each horn, CR about 68 mm or 126 x 37 x 22 33 g.  
 Rt. ov. with 2 yellow-orange CL, left with 2. Both with water-cysts  
 of oviduct. Fetuses 4 ♂♂





P. PEARSON

1952

Hacienda Pichupichuni, 8 km NW Ihuacullani,12,600 ft., Dept. of Puno, Peru3711 ♀ *Chenomya*

0.8 Vagina closed, nipple  $3\frac{1}{2}$ , no milk  
 438g. 294 x 70 x 36.  
 much mesenteric fat, pregnant, 1 emb. rt. horn  
 and 1 late resorption; 2 late resorptions left horn  
 Embryos 36mm CR., a ♀. Rt. ov. 2 CL, left ov. 2 CL.

3712 ♀ "

1.0 lbs. Vagina open. Nipple 4 mm, no milk.  
 523g. 297 x 71 x 37. Pregnant, 1 late resorption  
 in rt. horn, 1 in left, and 1 fetus in left 44mm CR.  
 Fetus a ♂. 1 CL rt. ov., 3 in left.

3713 ♂ "

1.3 lbs.  
 611g. 328 x 80 x 43. Testis 19mm. SV 32 x 4

April 8

3714 ♂ "

1.1 lbs. Testis 18mm SV 35 x 4  $\frac{1}{2}$ . Served test  
 Censura #E 663g. 338 x 86 x 42

3715 ♀ "

0.8 lbs. Vagina open, nipple 4mm, milk.  
 Censura 444g. 300 x 75 x 38. 1st parturition swelling in  
 each horn, or possibly resorption sites. Rt. horn  
 with 2 CL, left ov. 2 CL.

3716 ♀ "

0.7 lbs. Vagina closed. Nipple 5mm, milk.  
 Censura 374g. 296 x 70 x 38. 2 or 3 placental scars  
 in rt. horn, 1 in left. 2 CL rt. ov., 1 left. Ovaries  
 saved, left with uterus.

3717 ♀ "

0.8 lbs. Vagina closed. Nipple 5mm, milk.  
 Censura #A 402g. 298 x 78 x 38. 3 placental scars left  
 horn, none rt. Rt. ov. no CL, med. follicles, left ov. 3  
 pale CL.

3718 ♀ "

1.0 lbs. Vagina open, bloody. Nipple 4mm, milk.  
 Censura 518g. 313 x 80 x 39. 2 recent fetal sites  
 rt. horn, none left. Rt. ov. 4 CL, none left.  
 Ovaries saved, left with piece of uterus.

3719 ♀ "

Censura 0.7 lbs. Vagina closed, nipple 2mm, no milk.  
 355g. 292 x 67 x 37  
 Uterus fairly thick, 4  $\frac{1}{2}$  mm, but no emb. or scars seen  
 No CL either ovary.

3720 ♀ "

0.8 lbs. Vagina open. Nipple 5, with milk.  
 Censura #B 430g. 288 x 70 x 37. Left horn with  
 2 smaller recent fetal sites, rt. horn with 2 smaller  
 smaller sites, probably resorptions (maybe only 1).  
 Rt. ov. with 1 CL, left ov. with 3 CL.

3721 ♀ "

0.8 lbs. Vagina closed. Nipple 3mm,  
 just outside Censura 430g. 298 x 70 x 38 no milk.  
 Pregnant, 2 rt. 1 left. Swellings 15mm, embryos not seen  
 but probably OK. 2 CL rt. ov., 1 left.

3722 ♀ "

0.8 lbs. Vagina closed. Nipples 3mm, no milk.  
 Censura #J 402g. 315 x 79 x 37 Uterus 4mm, no  
 scars, possibly nullip. Ovaries small, no CL.

3723 ♀ "

1.1 lbs. Vagina open. Nipples 4mm, no milk, bare  
 Censura #H 555g. 311 x 78 x 39 around posterior pair -  
 a sign of late preg. (?) 3 fetuses left horn, none rt. Embryos:  
 128 x 37 x 22 36g. Rt. ov. 1 white CL, left ov. 3 white CL,  
 2 of them bigger than the rt. ov. CL. Fetuses 2 ♂♂ 1 ♀.



P. PEARSON

1952

Hacienda Pichupichuri, 8 km NW Ihuacullani12,600 ft., Sept. 7 Puno

- 3724 ♂ Otomys peruanus Censu # C 635g. 346 x 84 x 42  
1.3 lbs. Testes 21mm, seminal V. 50mm.  
Cervix closed for breeding.
- 3725 ♀ " Censu # D 416g. 303 x 75 x 38  
0.8 lbs. Vagina closed.  
Nipples 3mm, milk, 1 or 2 swollen embryos visible  
in left horn, none in rt. No CL rt. or,  
4 in left.
- 3726 ♀ " Censu # H? 332g. 285 x 75 x 37 no milk.  
0.7 lb. Vagina not open, Nipple 2 1/2 mm.  
reproducing: 2 rt. horn CR 17 and 19, one in both  
possibly resorbing. Left horn 1 resorption swelling  
rt. or. 2 CL, left or. 1 CL.
- 3727 ♂ " Censu # G 495g. 325 x 83 x 39  
1.0 lb. Testes 18mm. SV 30mm.  
[3727] ♀ " Censu # F 348g. 288 x 76 x 36 null.  
0.7 lb. Vagina scabbed. Nipples 4mm.  
Both horns recently parous, can't count scars.  
2 CL rt. or, 2 left +
- NOTE DUPLICATE #
- 3728 ♀ " Censu # K 410g. 303 x 82 x 38 no milk  
0.8 lbs. Vagina stuck shut. Nipples 3mm.  
Rt. horn 3 embryos. 23mm CR, left horn none.  
Rt. or. 3 pink CL, left or. 1 pink CL.
- 3729 ♀ " Censu # L 430g. 304 x 78 x 38 no milk.  
0.8 lbs. Vagina closed. Nipples 3mm.  
Rt. horn one resorbing embryo, left horn 2 embryos  
42 & 45mm CR. Rt. or. 1 CL; left or 2 CL.  
larger emb. a ♀, other (possibly  
resorbing, a ♂)
- 3730 ♀ " Censu # O 580g. 333 x 88 x 41 2 fetuses rt. horn,  
1 left. Total length 118. All 3 ♂♂. 2 CL rt. or, 1 left.  
1.1 lbs. Vagina closed. Nipples 3 1/2, no milk.
- 3731 ♀ " Censu # N 338g. 290 x 74 x 36 milk.  
0.7 lb. Vagina stuck shut. Nipples 4 1/2 mm.  
1 recent placental scar each horn. 1 CL rt. or,  
2 CL left. or.
- 3732 ♀ " Censu # P 410g. 311 x 78 x 39 milk.  
0.8 lbs. Vagina scabbed shut. Nipples 3mm.  
1 recent scar left horn (possibly 2), none rt. 1 CL rt or,  
2 CL left. or.
- 3733 ♀ " Censu # Q 444g. 2 fetuses rt. horn, none left.  
0.8 lbs. Vagina open. Nipple 3 - no milk.  
132 x 40 x 21 } fetus - 35 gr.  
Rt. or, 2 CL; left or. none. Fetuses - 2 ♂♂
- 3734 ♂ " 1.2 lbs. n.v. 40 x 4mm  
579g. 334 x 78 x 41 Testes 16mm
- 3735 ♀ " juv. Censu # m juvenis. Skin + skull saved.  
64g. 173 x 50 x 28 x 7  
Stomach with considerable vegetable matter



Hacienda Pichupichuni, 8 km NW Huacullani

P. PEARSON

1952

12,600 ft., Dept of PunoApril 9

- 3736 ♂ Ctenomys peruanus Cenans #5 1.0 lbs. Testis 17mm, SV. 34mm. 523g. 325 x 75 x 42
- 3737 Toad In guinea pig hole.
- 3738 ♂ Ctenomys peruanus Cenans #R 1.0 lbs. Testis 18, SV 35 563g. 337 x 84 x 40
- 3739 Lizard on tree pampa. saved.
- 3740 " Total 200, SA 92mm. Belly sulfur, orange, pre-anal scales stomach well-filled with vegetable matter.
- 3741 ♀ Ctenomys juv. Cenans V 158 x 44 x 25 49gms. 0.8 lbs. 402g. Vagina closed, nipples 2 1/2, just NW of cenans line. 310 x 82 x 40 no milk.
- 3742 ♀ " Terms smooth, 4mm wide, no scars, possibly milky. Rt. ov. with 2 pale CL, left with 1 pale CL, possibly new CL. Ovaries sized, left with more intense.
- 3743 ♀ Ctenomys peruanus juv. #U 138 x 41 x 22 35g. stomach. Vagina still attached. Tropped just outside cenans area. Green vegetation in

- 3743 ♀ Ctenomys peruanus 588g. 328 x 79 x 41 Vagina stuck shut. Duplicate no. nipples 3mm, no milk. Fat, 2 testes rt. horn, 3 left. 2 CL left ovary, 3 rt. Fetuses 3 of 20g.
- 3744 ♂ Lizard SA 85mm. Blue around mouth & throat, belly pale yellow, pre-anal scales bright orange. Testis 9mm.

- 3745 ♀ " SA 76mm. Belly pale, pre-anal scales not enlarged not orange. Left ovary with 5 large yellow follicles 4mm. diam, rt. ov. with 4 of them. No red CL seen or even follicles as big as 2 (mm).
- 3746 ♂ Ctenomys 1.2 lbs. testis 21mm, SV 45mm cenans #Y 621gms. 340 x 83 x 42
- 3747 ♀ " 2.6 lbs. Vagina closed. W outside cenans area. 320g. 273 x 70 x 36 nipples tiny, 1mm. Terms pale, 3 1/2 mm, no 2 faint discolorations each horn. No conspicuous CL either ovary, but saved. Left ov. with most intense.

April 10

- 3748 Galenomys garleppi at entrance to two burrow. Hides not 132 x 30 x 24 x 19 39g. Pumps on back. Pregnant 2 rt 2 left.

- 3749 ♀ Ctenomys juv. Cenans #Z. 177 x 48 x 28 65g. stomach with vegetable matter
- 3750 ♀ " " Cenans #AA 164 x 48 x 24 49g. stomach with vegetable matter
- 3751 ♀ " " Cenans #BB 143 x 38 x 23 37g.



P. PEARSON

1952

18 km. SW Pizacoma, 14,100ft, Dept. of Puno, Peru

3752 ♂ *Notiopterus* brood patch wrinkled, 523 gr  
 being refeathered. Bill 26 mm.  
 Testis 9 x 5 mm.

3753 ♂ " juv. shot in evening with 3752 and at least 4 other  
 small ones. Eyes hazel instead of brown. Side of  
 head striped. Testis 3.5 mm. 177 gr.

25 km. SW Pizacoma, 14,000ft, Dept. of Puno April 11

3754 ♂ *Ctenomys opimus* 0.8 lbs. 458 g. 310 x 88 x 47 SV 28 mm  
 testes 12, SV 30

3755 ♂ " " 1.0 lb. 509 g. 308 x 85 x 44.  
 dark pelage.

3756 ♀ " " juv. 89 g. 403 x 60 x 33.  
 0.5 lb. (aborted embryo) Vagina closed

3757 " " 248 g. 290 x 80 x 41  
 uterine tube < 1 mm. Uterus 2 mm, no sac.  
 no CL either ovary.

3757 ♂ " " 1.0 lb. 523 g. 330 x 92 x 45 1/2  
 testes 11 mm SV 28 mm.

3758 ♀ " " juv. 0.3 lb. uterine contents 1 1/2 mm Vagina  
 174 g. 254 x 74 x 39 closed.

3759 ♂ " 1.0 lb. Fat. Testis 12 mm.  
 530 g. 324 x 91 x 47

Pichupichuni, 12,600ft, 8 km. NW Hvacollani, Dept. of Puno

3760 ♂ *Chrocanops* <sup>no skin</sup> April 11 168 x 68  
 back almost white, white ear patch dorsal  
 connect with belly. Testis 3 mm

3761 ♂ " 185 x 76. Dull brown. Ear patch connects.  
 Skull mature. Tarsus 9 mm. SV small, 1 mm.

3762 ♀ miner 37 g. Entered trap hole when shot.

3763 ♂ Lizard Dorsal over black with spots of yellow  
 scales. Ventral sulfur yellow with orange  
 pre-anal scales. Testis 9 mm.

2 km. N. Nevado Lirina, 15,300ft, Dept. of Tacna, Peru.

3764 ♂ *Ctenomys opimus* April 12 0.8 lbs. Testes 12 mm. SV 30 mm.  
 439 g. 309 x 84 x 42

3765 ♀ " " juv. 150 g. 232 x 68 x 38

3766 ♂ " " juv. 136 g. 242 x 67 x 37 Testis 5 mm, SV tiny  
 Vagina closed, uterine tube 5 1/2 mm, no milk

3767 ♀ " " 262 g. 278 x 81 x 41 Fat not present.  
 One faint but definite ear each horn. no CL

3768 ♀ " " Vagina not open. Uterine tube thin. no CL  
 213 g. 267 x 70 x 40





P. PEARSON

1952

3769 ♂ *Ctenomys* sp.3770 ♂ *Lizard*234g. 274 x 84 x 43 Testes 7mm, SV tiny, 10mm  
SA 74mm. Testis 6mm.  
Belly mottled orange-yellow, pre-anal scales orangePampa de Titire, 14,600ft., 29 km. NE Tarata, Dept. of Tarma, PeruApril 133771 ♀ *Ctenomys opimus*

220g. 258 x 68 x 39. Vagina closed. Mupple 2mm. No emb., no CL

3772 ♀ *Ctenomys opimus*

262g. 270 x 77 x 41. Vagina not open. Mupple 4½mm, no milk. No emb., no CL

April 143773 ♂ *Blomys berlepschi*

158 x 71 x 22 + 14 20g. Testes 4mm.

3774 ♀ *Abodon andinum*

148 x 54 x 21 + 14 20g. no emb. Uter slender. No CL

3775 ♀ *Ctenomys opimus* juv.

242 x 68 x 38 175g. Much ovarian tissue. Vagina closed.

3776 ♀ *Ctenomys opimus*

278 x 88 x 42. 258g. Placental scar in 1 horn. Mupple 6mm; milk excretable

3777 ♀

Vagina not open. Mupple 5mm, no milk. 262gms. 286 x 80 x 38 Uterus 3mm, no scar, no CL. Forehead dark, patches very much like moulting of 3776. Mupple 4½mm, no milk. Vagina not open.

SKULL

3778 ♀ *Ctenomys opimus*

283gms. 294 x 89 x 43. Dark-headed, dark-tailed, "intermediate". Skull + humerus No emb., no scars, no CL. Hides nowhere pinned.

3779 ♂ *Ctenomys opimus* juv.

150g. 223 x 68 x 35 Testes 3½mm. Mupple 7mm, milk. Vagina not open

3780 ♀

258gms. 278 x 80 x 39 No clear placental scar, no CL. Considerable ovarian tissue.

3781 ♂

210g. 263 x 76 x 39 Testes 4mm. Vagina closed, mupple tiny.

3782 ♂

192gms. 274 x 78 x 40 Testes 6½mm, SV tiny. Color typical of juvenile

3783 ♀

218gms. 278 x 82 x 39 Vagina closed, mupple tiny. Uterus thin, no scar, no CL.

Capazo, 14,300ft., 123 km. S. of Ilo, Dept. of Puno PeruApril 153784 ♂ *Ctenomys opimus*

325gms. 313 x 90 x 42 0.6lb. Testes 9mm, SV small!

Pampa de Capazo, 14,300ft., 120 km. S. of Ilo, Dept. of Puno3785 ♂ *Ctenomys opimus*

388g. 296 x 78 x 42mm. Testes 9mm, SV 30mm. 0.8lb. Shot on soccer field.



P. PEARSON

1952

SKEL. ONLY

3786 ♂ Rhea

3787 ♂ "

63 lbs. skin + shell. Very fat.

Pampa de Titare, 14,600 ft., 29 km. N.E. Tarata, Dept. of Tacnacaught April 14, killed April 17

3788 ♂ Lizard

Belly sulfur + green, pre-aural scales large.  
SA 80 mm. and orange brown. Left testis 9, rt. 6 mm.5 km. E Lago Luche, 14,600 ft., Dept. of Moquegua, April 173789 ♀ Ctenomys spinosus0.5 lbs. Vagina not open, nipples 5 mm, no milk.  
276 g. 285 x 83 x 40.  
On ceana area near 7. Faint placental scars, no CL

3790 ♀ "

Vagina not open. Nipples tiny.  
202 gms. 260 x 73 x 40  
Tapped ceana area 18. Possibly the young one seen  
at same place in January 16. Probably 3 months old.

3791 ♂ "

0.8 lbs.  
388 gms. 285 x 78 x 42.  
ceana area 16. Testes 12 1/2 mm, SV 30 mm.

3792 ♀ "

Vagina not open, nipples tiny. Pelage dark, not  
178 g. 248 x 73 x 37 1/2. quite adult.  
ceana area between 3 + 4. Uterus slender, 1 mm, no  
scars or CL.

3793 ♀ "

Uterus pale slender, 1 mm.  
juv. 136 g. x - 65 x 34 1/2 Dark juvenile pelage.

3794 ♀ Lizard

Belly white, back with large linear black blotches.  
SA 51 mm. Ovaries 2 mm. diam, largest foll. about 1/2 mm.

3795 ♂ "

Belly pale yellow, dull grey-tan with lateral ridges  
SA 91 mm. small scales except on tail where coarse.  
Pre-aural scales orange-brown. Stomach with all vegetable  
matter (leaves of crinkly-leaved Molotricha). Left testis 11 mm,  
rt. 7 mm. Shot 8:30 a.m.3796 ♀ Ctenomys spinosus juv. Pelage black + grey, juvenile. Uterus 1 mm, pale.  
109 gms. 218 x 63 x 32 -

3797 ♀ "

shot 15 yds from 3796 in isolated set of  
droppings below bur. 2 placental scars rt. horn  
0.5 lbs. none in left.  
262 gms. 293 x 90 x 41 no CL

3798 ♀ "

0.7 lbs. Vagina not open. Nipples 5 mm, thicker than most  
348 g. x 82 x 41 other, no milk.  
1 fetus each horn 53 mm CR. 1 Pale but distinct CL each  
horn. Both fetuses ♂♂

3799 ♂ "

243 gms - x 84 x 41. Testis 6 mm. SV tiny

3800 ♂ Lizard

SA 44 mm. Belly light yellow, black with big black spots.  
Testis 6.3 mm. Stomach with crinkly-leaved  
Molotricha + grass?



P. PEARSON

1952

5 km. E Lago Encue, 14,600 ft., Dept. of Moquegua.April 183801 ♀ Ctenomys opimus0.6 lb. vagina not open. nipples 5 mm, watery fluid.  
304 gms. 329 x 90 x 42  
vagina 3 mm, possible scar each horn, no CL.3802 ♂ Grand tyrant24 g. on census area. Skull adult  
Testes 1 x 3 mm  
2 CL on ovary, largest  
5 mm, largest follicle  
2 mm. Oviduct large  
shot in flock of about 5.3803 ♀ Mitrospelia

70 g.

April 19

SKULL ONLY

3804 ♂ Ctenomys opimus sp.juv. 112 gms, 232 x 72 x 36 Face hardly any black,  
back brown but not as rich as Simia but much  
brownier than opimus of similar size. Too shot to  
skin. Testes  $3\frac{1}{2}$  mm.3805 ♀ Ctenomys opimus 0.6 lb. Vagina not open, nipples 6 mm, milk.  
290 gms 289 x 87 x 40 1 scar each horn3806 ♂ " " 0.4 lbs Testes  $5\frac{1}{2}$  mm, SV small, 10 mm.  
234 gms 268 x 78 x 403807 ♀ " " 0.6 lbs Vagina closed, nipples 5 mm, watery fluid  
320 gms 291 x 87 x 41 2 scars left horn. no CL.3808 ♂ Lizard SA 85 mm Belly light yellow, anal scales orange-brown  
Rt. testis 8 mm, left shot.Volcan Tutupaca, 16,500 ft., Dept. of Tacna, PeruApril 203809 ♂ Phyllotis darwini chilensis in hut. Fat. Testes 7 SV small.  
193 x 86 x 25 x 22  $\frac{1}{2}$  45 g3810 ♀ abodon boliviensis 6 emb. Fat. in hut.  
143 x 55 x 20  $\frac{1}{2}$  x 12 34 gms  
along hut. testis 5 mm SV small, 7 mm.3811 ♂ abodon boliviensis 130 x 46 x 19 x 12 17 gms  
along hut testis 5 mm, SV tiny.3812 ♂ Phyllotis darwini chilensis 188 x 80 x 24 x 21 39 gms  
along hut Fat. Oviduct scars3812½ ♀ Phyllotis darwini chilensis 210 x 94 x 26 x 23 78 gmsVolcan Tutupaca, 15,800 ft., Dept. of Tacna, Peru

3813 ♀ Lizard

SA 78.

Belly pale, back orange-brown. Stomach with  
several large, dark, crumbly - leaved  
invertebrates, and a few insect parts. Left ov. with  
3 yellow follic. 5 mm, rt. ov. with 2,  $4\frac{1}{2}$  mm.



P. PEARSON

1952

5 km. E. Lago Luche, 14, 600 ft., Dept. of Moguogva, Peru  
April 21

3814 ♂ Lizard

anal scales large, orange-brown.

SA 97 mm. Left testis 8 mm, rt. 9. Stomach with vegetable.

Both testes 9 mm.

3815 ♂ "

SA 82 PA scales large. Back speckled yellow + black.

Left ov. Rt. ov. no ovary, 3 follicles 1.2 mm.

3816 ♀ "

SA 81 Belly pale. Left ov. 3 yellow ova 5 mm + 3 foll. 1.3 mm.

Other foll. up to 1 mm.

3817 ♀ "

SA 71 mm. 2 ova in left ov. 5 mm, 3 in rt.

3818 ♀ "

SA 75 ova 4 1/2 to 5 mm, 2 each side

a few scattered peach scales on belly

3819 ♀ "

SA 76 ova 4 1/2 to 5 mm, 3 rt. 3 left. Sperm undist. ova

ova 4 1/2 mm, 2 each side. Other follicles numerous.

3820 ♀ "

SA 71 mm. Sperm up to 2 mm.

3821 ♂ "

SA 93 mm. Left testis 6, rt. 9. Back black + yellow, belly yellow

3822 ♂ "

SA 94 Testes 9 + 10. Can't tell which is (testis)

Back dark brown, belly white, but anal scales somewhat

3823 ♂ "

SA 74. Enlarged and orange brown. Testes 4 1/2 mm. Sperm.

Back brownish-red

3824 ♀ *Ctenomys* sp. 159 gms. 243 x 83 x 36 1/2 Vagina not open

uterus tiny. Uterus juv.

3825 ♀ "

206 gms 257 x 78 x 38 Vagina closed, uterus tiny. Uterus juveniles.

3826 ♀ Lizard

SA 41 ovaries tiny

April 22

3827 ♂ *Ctenomys* <sup>opimus</sup> ~~sp.~~

0.88 lbs. Testis 11 mm, SV. 30 mm.

416 gms. 323 x 90 x 43.

(Hervine of monie, copulated 24 hrs. ago)

3828 ♀ Lizard

SA 73 mm. Belly with a few yellow scales + a few black. 3 large yellow ova each ovary, 6 to 7 mm (larger than any so far). Sperm ova + undist. + streak of white glob. (possibly feces or sperm) from cloacal region. Stomach with plant material (Hervine of monie) copulated 24 hrs. ago.

3829 ♂ Lizard

SA 90 mm. Rt. testis 7 1/2, left 7. Sperm pieces of testis, epidid. + kidney. Stomach with plant material

3830 ♂ "

yellow + black speckled on back, belly orange-yellow bright.

SA 96 mm. Left testis 9 mm, rt. shot.

3831 ♂ "

SA 82 mm. Belly pale. Back dark (tinked when cold). Left testis 8, rt. 7. Back mottled black, no scales as in ♀♀ and juveniles.

3832 ♂ "

SA 52 mm. Belly dusky with yellow, pre-anal scales orange, slightly enlarged. Left testis 2 mm

3833 ♀ "

Back pale ♀, belly all over bright orange-yellow, chin white + gray mottling. SA 79 mm. Pre-anal scales not enlarged. Left ovary 3 ova 5 1/2 - 6 1/2 mm, rt. 3

3834 ♀ "

Belly white. Left ov. 3 yellow ova, 3 mm to 4 mm, and 6 white. SA 76 mm. Shedding all over. follic. to 2 mm; rt. ov. 3 yellow ova 3 to 4 mm, and 6 clear follic. to 2 mm.





P. PEARSON  
1952

5 km E Lago Acula, 14,600 ft., Dept. of Inogmagua

- 3835 ♀ Lizard Back mottled miniature, belly white with a few orange-peach scales.  
SA 46 mm. Ovaries tiny, follicles  $< \frac{1}{2}$  mm.  
3836 ♀ " Back mottled black ~~orange~~ + tan. Belly pale but distinct yellow.  
SA 49 mm. Ovaries tiny, follicles  $< \frac{1}{2}$  mm.  
3837 ♀ " Belly pale with sprinkles of grey + peach scales.  
SA 73 mm. Left ov. 3 ova 6 mm, 3 clear follicles 2 mm; rt. 2 ova 6 + 4, 4 clear.  
3838 ♀ " Belly as 3837. Left ov. 1 ovum 4 mm, no smaller follicles seen.  
SA 74. rt. ov. not found, absent. Ovipositor fully developed.  
3839 ♂ " Belly pale, back green, pre-anal scales yellow + slightly enlarged.  
SA 49, Testes 1.7 mm.  
3840 ♂ " SA 90 mm. Left testis 8, rt 9 mm.  
3841 ♂ " SA 86 mm. Both testes 7 mm.  
3842 ♂ " SA 94 mm. Left testis  $7\frac{1}{2}$  mm, rt 9 mm.  
3843 ♀ *Ctenomys opimus* typical *opimus* color. Vagina scabby closed.  
248 gms. 266 x 74 x 40 nipples 1 mm.  
claws with faint placental scars, 2 rt, 1 left.  
3844 ♀ " typical *opimus* color. nipples 6 mm, umbil. 26 g. 283 x 78 x 40  $\frac{1}{2}$  placental scars 2 rt. 0 left.

- 3845 ♂ Lizard SA 54 mm. belly slightly yellow, back juvenal

Cococchara, 15,200 ft., 50 mi SW Olave, Dept. of Puno

April 23

- 3846 ♀ Lizard Belly pale yellow-peach speckled with grey scales,  
SA 57 mm. back rather than tinted green, juvenal pattern. Ovaries tiny.  
3847 ♂ " Belly yellow-peach, back juvenal.  
SA 59 mm. Testes 2 mm, pre-anal scales not discernible.  
3848 ♂ " Belly robin's egg blue, anal scales orange-brown.  
SA 101 Left testis 6, rt. 9 mm. Stomach with leaves.  
+ SKEL *opimus*  
3849 ♂ *Ctenomys* 262 gms. 270 x 78 x 39 testes 7 mm, SV small about 15 mm.

April 24

- 3850 ♀ Lizard Belly pale, back juvenal. Ovaries small, 3  
SA 56 mm. follicles each side about 0.8 mm.  
3851 ♀ " Belly yellow + grey speckled. Left ov. 3 ova.  
SA 89 mm. 7 mm, about 4 clear follicles up to 2 mm; rt ov. 3 ova 8 mm. diam; 1 ovum clear follicles 2 mm diam.

SKELTON only

- 3852 ♀ *Lagodon peruanum* 22 lbs 636 x 238 x 95 x 63 lactating.  
3853 ♀? Lizard SA 55 mm (Carol's pet)

April 25

- 3854 ♀ Lizard Belly pale yellow + grey, back dark brown with rufous mottling.  
SA 98 mm. Ova 12 mm. Saved in formalin.  
3855 ♀ " Belly pale, back with 9 pattern. Left ov. with 2 ova  $3\frac{1}{2}$  mm.  
SA 78 mm. rt. ov. with 4 ova 4 mm, and some smaller yellow ova. Saved in formalin.



P. PEARSON

1952

3856 ♀ Lizard

Belly/pale blue, back rust, no pattern.

SA 92 mm. Left ov. 2 5-mm. ova. rt. ov. shot.

3857 ♀ "

SA 91 mm On same rock with 3858 + 3859 58.  
Belly orange with some pale blue scales on chin; back dark brown with only trace of pattern. Left ov. 1 ova 9 mm. Rt. ov. 5 ova 6 mm.

3858 ♂ "

SA 88 Both testes 7 mm. Stomach containing leaves.  
Belly blue-green, back pale rusty tan. Anal sacs large.

3859 ♂ "

SA 82 Left testis 6, rt. 7 mm.

3860 ? Grey-headed finch

Shoulder adult  
33 gms. Shot 1 a.m. in Canyon Muir.Pampa Aneullecota, 60 km S. Ilave, 13,200 ft., Dept. of PeruApril 26

+ SKEL

3861 ♀ Ctenomys peruanus1.0 lb. 537 gms. Vagina open,  
304 x 74 x 39 Nipples 4 mm, no  
milk. 5 testes, 4 left 1 rt. 121 x 32  
2 x 4 30 x 8.

+ SKEL

3862 ♂ "

1.2 lbs. Testes 20 mm, SV 40 mm, very  
623 gms. 310 x 75 x 42 completely  
Vagina closed, Nipples 5 mm, milk.

3863 ♀ "

340 gms. 280 x 67 x 38  
2 sides left horn, 1 rt.Pichupichuni, 12,600 ft. 8 km. NW Huacullani, Dept. of PeruApril 283864 ♂ Ctenomys peruanus

Testes 19, SV large, 45 mm.

388 gms. 317 x 88 x 38. Skeleton for Hildebrand

census B<sup>2</sup>

3865 ♀ "

census A<sup>2</sup> Vagina closed, Nipples 4 mm, milk.

385 gms. 306 x 79 x 38. 1 clear ova each horn

3866 ♀ "

Rio Huayra,

3867 ♂ Tyrant

in cave at night.

30 gms. skull unmineralized

Pichupichuni, 12,600 ft. 8 km. NW HuacullaniApril 283868 ♂ Ctenomys peruanus1.3 gms. Testes 19, SV 45 mm, large.  
census C<sup>2</sup> 613 g 331 x 86 x 40.

3869 ♀ "

jun census D<sup>2</sup> 48 g. 163 x 42 x 25 1/2

SKULL for Hildebrand

3870 ♀ Mother

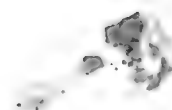
234 gms. One of 2 (or more) No body fat. Tiny ova

3871 ♀ Lizard

SA 50 mm Jun. color. ova tiny.

3872 ♀ "

Belly orange, back little pattern.  
SA 87 mm Left ov. 4 ova. 7 1/2 mm, rt. 2 ova, 7 1/2 mm.



P. PEARSON

1952

- Edge of census area (but outside)
- 3873 ♀ *Ctenomys peruanus*. 402g. 290 x 73 x 38 Vagina open, bloody nipple 4mm, milk. Left ovary with 2 or more CL of different ages. Rt ovary in CL (somed with piece of horn. Left horn recently parted (1 int.)
- 3874 ♂ " " just outside census area. Testis 18mm, SV large. 537g. 332 x 82 x 39 Big 30 line thick throat plain low ♀♀

- 3875 ♂ " " Testis 22mm 326 x 78 x 41 600g. ms. EV large

- Belly pale yellow-green, back greenish + black mottled.
- 3876 ♂ Lizard SA 85mm. Both testes 7mm

- 3877 ♂ *Dasyatis* 42½ x 13½ x 5.7 x 3½ uterine, no emb.

10 km. SW Huacullani, 12,900 ft., Dept. of Puno, Peru

- April 29
- SKEL 3878 ♀ *Ctenomys leucodon* vagina scabbing closed. nipple 2mm, no milk 268g. 285 x 79 x 36½ Uterus furrowed, parina, ovaries with large follicle or CL, saved, rt. ov. with piece of uterus.
- 3879 ♀ " " Vagina closed. nipple 3mm. mammary 248g. 262 x 68 x 35 same Uterus saved. 2 left 1st

- 3880 ♀ " " Vagina closed. nipple 3mm, no milk. 258g. 264 x 67 x 34

25 km. N.W. Azayiri, 12,900 ft., Dept. of Puno, Peru

- May 2
- 3881 ♂ *Hesperomys lucilla* Testis 6mm, SV very large. 116 x 39 x 16. 13 gm
- 3882 ♂ *Akodon boliviensis* Testis 6mm. 150 x 62 x 20 x 15 16 gm
- 3883 ♂ *Akodon boliviensis* Testis 5mm. 147 x 62 x 20 x 13 16 gm

18 km. N. Paucartambo, 11,900 ft., Dept. of Cuzco, Peru. May 4

- 3884 ♀ *Akodon boliviensis* 126 x 60 x 20 x 14. no emb. 13 gm
- 3885 ♀ *Akodon boliviensis* 6 emb., including 172 x 76 x 20 x 14 26 gm
- 3886 ♀ *Akodon boliviensis* 163 x 71 x 19 x 14 embryos. 26 gm

- 3887 Frog. under grass on dry hillside

- May 6
- 3888 ♀ *Long-tailed mouse* *Thomomys gracilis* on edge of cloud forest. no emb. 18 gm. 195 x 114 x 23 x 21½



1952

34

3889 ♀ spine-tail

ovating.

20 gm.

10 km. N. Paucartambo, 10,400 ft., Dept. of Cuzco, PeruMay 73890 ♂ jay-lamb.

eye orange-red, 72 g. Testes 9 x 6

3891 ♂ long-tailed mouseOryzomys longicaudatus

196 x 120 x 26 x 16.

19 gm.

3892 ♀ Oryzomys minutus aurillus

165 x 107 x 23 x 16.

11 g.

3893 ♂ Neotomomys? Akodon surdus?

166 x 78 x 21 x 15

21 g.

3894 ♀ OdocoileusPregnant, fetus about 15" long. ht. at shoulder  
49 3/4 x 5 1/2 x 13 1/2 x 5 28 in.May 83895 Oryzomys minutus aurillus

[83] x [24] x 20 x 13 10 g.

3896 ♀ Akodon surdus?

185 x 86 x 23 x 17

24 gm.

3897 ♂ Oryzomys longicaudatus

228 x 124 x 29 x 15

26 g

10 km. SSW Abasco, 6250', Dept. of Apurimac, PeruMay 103898 ♂ Hesperomys sp.?

155 x 71 x 19 x 17 18 gm

3899 ♂ Hesperomys sp.?

136 x 70 x 20 x 16 8 g

3900 ♂ Oryzomys longicaudatus

167 x 103 x 22 x 15 8 gm

24 km. S Chalhuanca, 11,700 ft., Dept. of Apurimac, PeruMay 113901 ♂ Akodon?

testes 11 mm.

178 x 74 x 20 x 15

31 gm.

3902 ♀ Akodon boliviensis

Lactating

150 x 65 x 19 x 13

21 g.

3903 ♂ Akodon boliviensis

testes 10 mm

177 x 77 x 19 x 14

26 gm

40 km. SW Chalhuanca, 14,500 ft.,Dept. of Apurimac, Peru3904 ♀ Phyllotis pictus4 emb., 3 left inf.  
220 x 90 x 26 x 23 66 gm

3905 ♂ " "

198 x 85 x 26 1/2 x 22 1/2 61 gm.

Testes 11 mm

3906 ♀ Tiaraone of two, shot 6:30 a.m. crop empty. 2 1/4 lbs.  
ovoid large, ovary large, numerous large atretic follicles.  
ovary + skull saved3907 ♀ Phyllotis pictus

216 x 88 x 25 x 22 2 emb. left side 87 gm.





P. PEARSON

1952

3908 ♂ Lizard

3909 ♀ "

3910 Phyllotis sublimis  
CoccolobaMay 13 Color dull, pre-antral scales large, dull orange.  
95mm SA. testis 7mm.color dull, no dorsal pattern. 5 ova in each horn,  
83mm SA developing embryos. Sared all.

caught by CK testes 7mm

149 x 51 x 21 x 22 26 gm

(caught at Coccoloba, used for temp. studies, killed May 13)

3911 ♂ Lizard

SA 101

3912 ♂ "

SA 95mm

3913 ♂ "

SA 49mm Back pattern.

Logo Lucha

(as 3911)

3914 ♂ Lizard

SA 91mm

3915 ♀

SA 66mm

3916 ♂

SA 51mm

3917 ?

53mm

40km. SW Chalhuanca, 14,600ft., Dept. of Apurimac, May 13.

3918 ♀ Lizard

SA 91mm. No back pattern. 6 embryos  
in rt. oviduct, 2 in left. Swelling 14mm long,  
embryo CR 11mm; 10mm. Left ovary 6 CL 1.2mm  
in diam; orange and clear follicles up to 1mm.  
Rt. ov. 3 CL

3919 ? "

SA 43mm Back patterned

3920 ♀ "

35km. ENE Pucallpa, 14,600ft., Dept. of Ayacucho, PeruMay 143921 ♀ Chrysomys jelskiino emb.  
166 x 77 x 23 x 21 32g.  
3 emb. (2rt, 1lt)3922 ♀ Phyllotis darwini chilensis223 x 110 x 25 x 24 56gm.  
no brood patch. One of two ovaries with  
large atretic follicles.3923 ♀ T. macrotis

3924 ? Lizard

SA 49mm.

3925 ♀ "

SA.



P. PEARSON

1952

15 km. NE Pucuro, 13,500ft, Dept. of Ayacucho, PeruMay 14

3926 ♂ Lizard

SA 75mm Testes 6mm. Pre-anals large.

3927 ♂ *Chromomys jelskii*

182 x 73 x 24 x 17

41 gm

testis 12, SV large.

3928 ♂ *Phyllotis darwini chilensis*

272 x 138 x 28 x 26

72 gm

testis 3mm

3929 ♂ *Akodon boliviensis*

149 x 67 x 20 x 18

17 gm

Pregnant 1st 3 left

3930 ♀ *Phyllotis sublimis*

167 x 57 x 23 x 24

49 gm

discarded 5 juv. *A. boliviensis* wt. 8 gm. ±3931 ♀ *Phyllotis darwini*. (not saved) 240 x 128 x 25 x 253932 *Motheoprocta* ♀ 424 gm. ova about 2 1/2 mm.

♀ 531 gm. testis follicles about 6 mm, largest

♂ 569 Testes 20 mm

♂ 472 " 14 mm

♂ 406 " 13 mm

♂ 407 " 12 mm

♀ 458 follicles up to 2 mm, oviduct smallish

♀ 563 big oviduct, one follicle 21 mm, another collapsed one (probably shot), no CL seen.

♂ (killed by hawk) Testes 18 mm.

3933 ♀ Lizard

SA 52 mm Belly orange-yellow. Distinct follicles 1 mm.

3934 New kind lizard

18 km. NW Pucuro, 11,500ft, Dept. of Ayacucho, PeruMay 163935 ♂ *Phyllotis Hesperomys*

testis 9 mm, SV large

162 x 78 x 20 x 17 21 gm

3936 ♂ " *Hesperomys*

testis 8, SV large.

159 x 79 x 20 x 17 19 gm

3937 ♂ *Akodon boliviensis*

testis 12 mm

156 x 69 x 20 x 13 29 gm

10 mi. N. Cante, 100ft, Dept. of Junin, PeruMay 183938 ♀ *Phyllotis amicus montanus*

[123] x [43] x 20 x 24

no emb.

17 gm



# JOURNAL



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P. PEARSON

Quila, Peru

- Nov. 17 Went with family by bus to Maña to look for bat tunnels (about 20 miles east of Quila). On the barren slope southeast of the bus stop found 3 nice mine tunnels in rock. Droppings and bat smell in all but no bats. The droppings were quite tarry, homogeneous, possibly vampire.
- Nov. 19 Went back to Maña to look in some tunnels south west of the bus stop (east of the big seminary farm). One good horizontal tunnel and 3 vertical tunnels. Good droppings around entrances of all but no way getting into the vertical ones. I think one of the vertical ones was the one from which Gardner, Hertig and I got bats in 1939, but the timbers are now gone and no way of getting into them without rope ladder.
- Nov. 23 Left at 7 a.m. on train for the mountains. All up hill after chosica and gradual transition to althplano conditions. Most of valley and slopes heavily utilized. In several places were old terraces, not used, and right beside them cultivated fields on steep slopes. Don't know why the old terraces are not utilized. The high country is much less interesting than southern Peru. Saw no ducks, geese, <sup>doves</sup> shore birds, caracaras, alpacas, or flamingos; only a few llamas and sheep. The rivers are polluted by mining activities. Hills around Oroya are totally bare (from smelter fumes?). Got off train at Pachocayo upon advice of people on the train because here there were supposed to be tin mines and a hotel. No hotel. Only a big Cerro de Pasco





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sheep + hog ranch that would have put us up if their quarters were not occupied by some visiting wool buyers or graders. Hills roundabout did not seem to have enough bunch grass to be good tinian country anyhow. Upon advice of the ~~best~~ ranch manager, Mr Wright, took the next train to Concepcion and went to Huaychulo - which turns out to be a huge and swanky german-run hotel. It is the only <sup>high class</sup> "vacation" hotel known in Peru. Others are in cities. Arrived just before dark. Sprinkles of rain, thunder and lightning.

Nov. 24 Temp. 50° at 7 a.m. Night clear. Countryside rather heavily cultivated plus groves of eucalyptus. East of the hotel is a long ridge, almost bare of vegetation, heavily gullied, some of the gulches 15 feet deep. Most of the surface is bare rock, stones, gravel, weathering shale. But on top are some plowed fields, some with young quinoa or sweet potatoes, others with no plants showing. From the top a good view of the hillsides and the broad valley running to Huanacayo is afforded. This is the season of plowing and planting (oaten or matlock) and about half of the <sup>valley</sup> ~~valley~~ countryside is a patchwork of fields. The rest is sparse grass, <sup>eucalyptus</sup> or bare eroding slopes. Typical badlands are forming in many places. The country is terribly overused.

Especially bad is some of the country between Pochacayo and Concepcion. Very steep and very stony slopes are being cultivated for very small yields. Even into the valley



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some of the flat fields are so stony that surely less than half the surface is soil. Most of the stones weigh less than 10 pounds. In some fields the stones have been cleared to form stone fences. One small field was surrounded by a stone fence about 5 feet high and 5 ft. thick. Frequently the stones are piled into heaps in the fields.

Some of the cultivated fields on the ridge <sup>east</sup> of the hotel were being fertilized with pulverized cow manure, - four or 5 bushels to a small field ( $\frac{1}{2}$  acre  $\pm$ ), carried up to the hilltops or burrows.

Nov. 25 Walk with kids on burrow. Crops: grain, guava, potatoes, sweet potatoes, 2 kinds artichokes, corn, planted eucalyptus. Some eucalyptus with 1<sup>st</sup> sprouts 12" diam., wild cherry.

Nov. 26 Left on train for Lima 7 a.m.

Concepcion <sup>Jauja</sup> Train goes up flat valley about 2+ miles broad between eroded hills. Fields recently plowed, some with new grain sprouts, some with thick covering of smooth stones, some with stones gathered into heaps, others with few stones. A map of the upper limit of Eucalyptus along the eastern slopes should provide a useful isotherm based upon frost. Jauja is 11,000 ft.

Jauja (11,000) - Crops - First part as above with most abundant plants being Eucalyptus + agave? (century plant?). Then up the canyon of the Rio. Slopes badly eroded, scattered shrubs. Many samples of overused land. Extremely steep slopes being cultivated despite the fact



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that they are half stores. No terracing. Many fields only 10 yards square; some situated on the little plateaus between 20-ft. deep erosion gulleys. Some fields at least slope  $45^\circ$ , a few you would swear are at the critical angle of the soil and stones. No contour plowing, almost all vertical furrows. Eucalyptus still at Hualapampa (      ft.) but not at Pachacayo (      ft.). Bunchgrass appears at about the place the Eucalyptus disappears. Last part, before the Oroya desertation, is open country with bunch grass, short green grass, and rock outcrops. Somewhat like Pánuco but less "lush"; grass more sparse.

Oroya - Tichio (15,600') \* Grass increases in abundance up to about 14,500'; then higher parts with bunches of Festuca orthophylla as at Combarbalá.

Tichio - Bunches of Festuca disappear about at Casapalca (      ft.). Almost immediately begins "rabbit brush", <sup>lupinus</sup> and baccharis scattered with ichu. Eucalyptus above Chila (12,200 ft.).

Dec. 1 Finally got bus thru aduana and benaspleta this morning. Left Lima about 2 p.m. and drove to north of Pisco spent night in sandy desert.

Dec. 2 (Sunday) Drove for a while, then stopped for several hours to unpack boxes and arrange everything in bus.

Camped for night <sup>30 km. north of Oroya, 15000 ft.</sup> in stony desert next to a tongue of very scattered dead-looking bushes surrounded by utter desert. Had time to put out only 12 museum specimens before dark.



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- Dec 3 Temperature on the beach when repacking yesterday at 10 a.m. 73°, humidity 73. This morning at 6 a.m. temp. 60°, humidity 80°. Nothing in traps but mouse footprints near one of Anita's.
- Dec 4 Much driving over much bumpy road and some photography of the Loma and baranca. Slept on long up grade approaching Arequipa.
- Dec 5 Most of day in Arequipa, then back up the hills to the SW. Camped near the crest of these hills at 8500 ft. Stony sandy hills with scattered dried shrubs and tall cactus (pipes 2" diam). Had just parked bus when I spied herd of guanacos only 300 yards away. Collected one with Horvath. Skinned it, then set 35 Museum specials down a sandy wash and along a stone wall (remains of mining activities). Anita set 25. Guano fillet for supper.
- Dec 6 <sup>Temp. at Daybreak 46°</sup> Skinned mice (2 *Phyllotis* in my line and 2 in Anita's) and finished guanaco. Both my mice along a stone wall, none out in desert under shrubs. One of Anita's along stone wall, other under pipe cactus. Then drove to about 20 km. W of Moquegua. Some mice baranca on the Mollendo road, and several nice stretches of low vegetation. More of the rusty orange "rotten" bichen. Numerous flies + beetles among the low flower meadows. The orange bichen is found on the inland fringe of the Loma. The wild "pringle" frequently seen out on the gravelly desert is also almost rotten, hence unattached. It can be dislodged with a wedge.
- Camped in a dry wash about 20 km. W of Moquegua. Scattered shrubs in the wash and a few feathery-leaved trees.





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Had time to set about 20 museum specials before dark. The surprising thing about the Torna vegetation is how little nitrogen it is: practically no grazing. Grasses play a small part in its composition.

Dec 7. No mice. a fox dropping contained no fur, only seeds. Temp. at sunrise 60°. alt. 4000'. Refueled at Mogueva then set out for Volcan Tutupaca, Pacho Grande + Masojung. a little grass appears above Mogueva at about 6300ft, then <sup>pine</sup> cactus and scrub become increasingly abundant. Camped about 1:30 at 11,200ft, along the Rio Torata (dry except for a few puddles) where Baccharis, cactus, and other scrub were fairly abundant. Set out about 65 museum specials on a rocky slope of grass, scrub, and cactus. Tiny toads swarming around a couple of seeps near the abandoned village in which we are camped. Some mines nearby with powder blue and robin's egg blue tailings. Several sets of abandoned terraces on the way up the hill from Torata. At 3:15 at our new camp temp was 66°, humidity 40%.

Local fauna seen consists of tiny toads <sup>+ tadpoles</sup> around a seep, large tadpoles in a pool in the quebrada, ground doves, a startling black hummingbird, and viscachas (2 seen) jacklighting at 7 to mine tunnel. Found 2 frogs under bushes 100 feet from water. 3 hummers in tunnel.

Dec 8 Temp at 5 am 36°. at 3:15 p.m., sunny & windy, 60° and 46%. My traps held 1 Bolomys berlandieri (skipped so must have been caught yesterday afternoon) and 3 Phyllotis, probably of 2 kinds (judging by foot size).



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Found another blue tunnel just above the one that had the hummingbirds last night. This one held some small bat droppings, hummingbird droppings, and ~~an~~ old hummingbird nest.

Some of the deeper pools in the stream bed have a surprising number of tadpoles. One pool 8" deep and about 5 feet diameter had over 100 tadpoles 2 to 3" long. Must have weighed a pound.

Picked up my old trapline and put down 40 new ones through large bushes + rocks beginning at bottom of hummingbird tunnel and ending in rather open sage.

Dec 9 Got up at midnight to visit the 2 hummingbird tunnels. caught 3 hummers (1 topial) and one escaped. also in the tunnel 1 <sup>ground tyrant</sup> ~~grey jay~~? and 1 <sup>streaked spine-tail</sup> ~~oven bird~~? (see hummingbird species account).  
airtemp was 5°C at 12:30 a.m., at 5:30 a.m. 38°.

Traps held 2 *Bolomys* among tall bushes + rocks, and 5 *Phyllotis* of 2 sp. The 2 big-footed dark-tailed ones were under a large green-thorn bush, the others under cactus or more open sage. I blew out 3 *Bolomys*, 1 *Phyllotis* (small footed/pale), 2 *Toxocara* (caught in mouse traps), 1 ash-breasted finch, and 1 ♀ hummer from tunnel last night.

Left about 2:30 and ground up the hill. Quite a bit of *Polydipis* between 12 + 13,500 ft, then acres of boulder fields and yareta. The first yareta was 12,500 ft. took a wrong turn to the south, and *Pyrophyllum* 13,500 went over a pass of *Festuca* at about 14,000, then dropped down into the next valley south of Rio Torata upstream a few miles from Tala. <sup>11,200 ft</sup> Among switchbacks



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but road not bad. Ended up at a prospecting lodge of American Smelting Co, complete with electricity etc. Had coffee, ~~the~~ for gasolene then retraced our way up the hill and camped among Festuca at 13,700. Temp. 24°

Dec 10 Anita caught 2 Phyllotis in her traps. Skinned, then back to the Maguey-Tutupaca road. Quite a few quercus trees in the 13-14,000 foot zone. Then some very extensive stone fields with much yarreta — more yarreta than I have seen elsewhere. At 14,400 ft. Mic strobilus of Festuca orthophylla appeared, and Ctenomys diggings where the soil was sandy or gravelly. Saw one tree of Tringoides Anita shot one through the leg. It was on a considerable slope but did not fly. It thrashed around on the ground and allowed me to catch it.

Arrived at the little sulfur-smelting village of Tutupaca on the edge of Lago Duché about 2 o'clock. Met by Juan Pulgar, the foreman. Went driving with him  $1\frac{1}{2}$  hrs along the road to see if Bus could make a steep grade on the way to Pasto Grande. Before we got to the grade, however, he decided we could not make it. Had supper with him and camped in the village. Flamingoes, ducks, and giant coots (and their floating nests) on the lake. Surrounding hills Festuca orthophylla. The sulfur diggings are up on the slopes of Tutupaca about  $1\frac{1}{2}$  hrs by truck at 17,000 ft.

Sr Pulgar has lived here 9 yrs. and had some interesting remarks in a long post-dinner discussion of Zoology, botany, and economics. He has never seen a seedling yarreta nor a young



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queñer tree (Polylopsis), and come to think of it neither here & there. He says a mature Polylopsis or yareta is probably over 100 yrs old. Cutting Polylopsis is prohibited. It makes excellent charcoal. Calls Ctenomys "certenejo." Says there are "conejos" on the pampa Hamature.

~~Forgot to~~

Dec. 11 (Tue.) Put the high altitude jets in the carburetor and advanced the spark. Big improvement. Left after breakfast for Pato Grande etc. but stopped at the tree desert beyond Pampa Hamature (15,000 ft) for much photography of the desert. Shot 4 Ctenomys, all opimus. Drove on at lunch time.

Made the steep ascent OK where the road crosses the river, then drove across the Festuca hills to Lago Viscocha. Many vicuñas and looked good for Rheas but didn't see any. Enormous herds of alpacas around Lago Viscocha and in the valley to the east. Over 100 in many herds, well over 1000 alpacas in this "fertile" valley. Some grazing out in "bare" desert.

Camped at 15,000 ft. where rocky hill meets rich green sedge at edge of fertile valley - Vicuñas, alpacas, and Andinomyia boliviensis and Viscocha abundant. <sup>amto part out traps.</sup>

Dec 12 Traps had 2 Chroomyz and 3 Phyllotis. <sup>Temp. 26°</sup> Made photos of Andinomyia boliviensis and shot another duck. Then drove past Lago Toriscota (many flamingos), Pato Grande, to Cachaera turnoff. Many alpacas; some herds of 500. Much tucú activity. The road back to Cachaera was about same but lacking vicuñas and rheas.





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Day was sunny until approaching Coacchara, then ran into a wet hail (3 p.m.). Home again & Temp. in late afternoon between 35 & 40 with light sprinkle-hail. Frogs calling in evening, and saw 2-inch tadpoles.

went up to mine tunnel in evening to look for birds but none there. Heard no tinamous, only seed snipe and the gull-like cry of ~~the tinamou~~ a black & white plover flying upstream in the dark.

Dec 13 Minimum 27° at 8:30 a.m. it was 45°; cloudy, very faint drizzle, humidity 78%. Puddle with frogs 5 1/2°. cloudy all day with drizzle, hail, rain, and snow. Snow quite steady from 3:30 to 8:30. Went for walk for 2 hrs after breakfast, mostly SW. Ground from recent rain was good for tracking but saw very few vicuña tracks, no tinamou or rhea tracks. Saw only one herd of vicuña. Dug for hibernating amblyscopus sublimis, but found none. In afternoon set steel & snare traps in Canyon Mine & Cupola Mine hoping to get abrocoma. On the steep walls of the Canyon mine were several accumulations of bird droppings - probably resulting from night roosting. Looked for tinamou nests on the gravelly - stony ridge above Canyon Mine but found none.

Frogs singing after dark, air 1/2° C. One puddle with 3410 was 4°, another with 3411 was 6°. at 8:30 went up to Canyon Mine to look for roosting birds. A small finch-sized bird escaped from a tunnel on the way. In the canyon shot one tyrant 3412 roosting on one of the pedestals of droppings.



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1)

It was warm to the touch, another bird, looked tyrant size, flew off. It was snowy and windy at the time, but the birds were sheltered from both. Temp at ~~was~~ <sup>was</sup>  $1^{\circ}\text{C}$ , up above in the wind  $\frac{1}{2}^{\circ}$ .



Dec 14 Minimum  $30^{\circ}$  (yesterday's Maximum about  $50^{\circ}$ ). Fox tracks around here and up near Canyon Mine. Sky overcast although a few blue patches and Tutupoca in sun for a short time. One *Phyllotis* in my traps. Anita went for walk upstream and heard tinamous. Saw quite a few vicuñas. Photographed vicuñas at shore side: a young one nursing. Drove back to crossroads for lunch, then down the Rio Santa Rosa. Most striking is the vegetational change. On the Tutupoca - Santa Rosa road as soon as you cross the divide into the Tiberio drainage. The festuca bunch grass is immediately replaced by ichu bunch grass and <sup>(15,000)</sup> *Sagex*. Camped at 14,400 at a deserted mining community amidst rich ichu hills along the river. Sunny when we arrived (2 p.m.) but a few minutes later a strong wind from south followed by fairly heavy rain & snow until supper. Set 50 traps among ichu & rocks. Found frog walking 25 ft. from stream in snowstorm, air temp  $33^{\circ}$ . Heard *Tinamotis* calling close to camp but couldn't locate them.

Snow stopped after supper, then full moon.

Dec 15 Night mostly clear. Minimum  $27^{\circ}$ . Morning sunny, pleasant out of wind but cold in wind. at 9 a.m. sunny, temp. in shade  $42^{\circ}$ , humid. 68%. An hour later temp.  $44^{\circ}$ , humid 68.

my traps had 5 *Phyllotis*, 1 *Chrocomys*, 1 *Amblyomys sublineatus*.



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Heard Tinamotis crowing, saw flickers. Left about 11 with truck from Tintupoco. Saw Tinamotis among ichu at 14,300 but missed. Arrived Santa Rosa at noon, then across some rather nice sage desert to the Valley of the Winds between Santa Rosa + Mazocruz (Rio Santa Rosa, 13,300ft.)

Put out 60 museum specials among tola (Lepidophyllum), Festuca, and rocks, - all rather sandy. The re-appearance of what looks like Festuca orthophylla here is interesting. Also set 8 gopher traps for tuco among the <sup>tola</sup> sage + Festuca on the flats along the river. One of these was sprung + empty before dark.

Dec. 16 (Sunday) In my traps only one Akodon andinum? along a sandy dry wash. Ants got 1 Bolivus, 1 Eligmodontia, and 1 Amphiscaurus? also 1 Ctenomys opimus by a hind foot. Late in the morning caught another Ctenomys by the hind foot. Night clear, minimum 20°. at 5:30 a.m. - 25°; 6:45 - 38°, 42%; 8:00 - 42°, 28%; 9:00 - 48°, 28%; 11:30 - 15°C, 28%; 2 p.m. - 16°, 22%. Hot in sun, cool in shade, even cold.


Left about 2 p.m. and drove to Pampa Quemada where we shot 4 guinea pigs and made camp. Heard one tuco bubble but have seen none. Nice clear sunset on the ichu hills.

Dec 17 Temp. at sunrise -4°C. Clear all day except few clouds in late afternoon. Photos + hunted tuco + guinea pigs in morning then drove a few miles to the gorge of the Rio Huerfano and camped along the river. Skinned Tucos and fished (3 9-inch and 1 12-inch). The canyon more beautiful than ever at sunset.



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13

~~at sunset~~ In the afternoon 5 Indians waded upstream with long-handled fishnets  trying to net fish. They seemed to herd the fish upstream, then try to close in on them in deep pools. Frequently one man up on a rock overlooking the pool directing operations.

Dec 18 Temp. at sunrise  $27^{\circ}$ . Night clear, frosty, ice on puddles. At 10 a.m. temp.  $50^{\circ}$ . Saw guinea pig near our camp in the canyon. Left at 10 for Puno (11:45) and Puno (2:30). Shopping etc. in Puno. No mail. Then up onto plateau toward Arequipa about 15 km. Camped in ichu <sup>5 km NE Puno</sup> paupso, with metamorphic rock outcroppings. Put out about 25 museum specials just at dusk. Day clear and sunny with gorgeous clouds near lakes. Evening clear + windy, 13,300 ft.

Dec 19 Temp  $25^{\circ}$ . Drove to about 105 km. post, <sup>14,300, 70 km E Puno.</sup> then stopped for day because ants + birds were all feeling sick. Took photos of gulls and coots and their island nests at Laguna Umayo. Gull nests whitened by droppings, squarchy when stone is tossed on them. Put out at 3:30 about 55 museum specials in ichu-rock-thorn (*Amygdalopsis stricta*). Not much mouse sign. One herd of vicuña rather tame near camp.

Day clear but clouds gathered overhead in late afternoon, then curling of ~~the~~ clouds but clear all around edges. Gorgeous thunderhead in north at sunset. Then clear overhead after sundown with a few clouds to the east.

Dec 20 Temp. at sunrise  $24^{\circ}$ , at 7 a.m.  $32^{\circ}$ . Butterflies were flying at 6:30 a.m. in the sun. Traps not touched! Took photo of cluster of huts in valley at sunrise. a very earthy + peaceful setting. While taking the photo a





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young girl came out of the courtyard to fetch water at the stream, a man came out flicking his pando about him and shoved the sheep out of the stone corral behind the house (some sheep and llamas were already outside but staying close) and intermittent plumes of smoke from the chimney gave evidence that we were putting tola? on the breakfast fire. A rooster crowed, and a small bird perched in the sun on the thatch roof ridge.

Took off about 7:30 ~~for~~ in search of Kofords. A few km. before their camp (135½ km) we came upon a Ford truck capsized by the road. The driver had hit the bridge abutment with his back wheel so that the whole rear assembly stopped short while the body slid forward 20 or 30 feet and capsized. The 15 or so passengers who had been riding on top as well as the cab-passengers were sitting around bewildered, some wailing. Very little blood in evidence, but probably some broken bones. We took some of the worst injured, the owner, and a Guardia Civil back to Tivcopalca, then returned to look for Kofords. At km. 135½ we found a heap of duck + huallata feathers, a pile of tin cans, a foot without skull, and several discarded plastic baby pants. No other trace. Continued on ~~in search of~~ towards Arequipa.

Camped at Joyosa delicias, 14,100, and put out 30 traps in sand - Festuca.

Dec 21 Temp. at sunrise 24°. One mouse in traps, a Hesperomys. Drove down to Arequipa, arriving about 11 a.m. Much good tola etc on



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the way down, including slopes of what looks like dwarf  
quercus.

Still no mail at post office, but located Koford's at Hotel  
Tourista. They had sent letter to P.O. weeks ago and Carl had  
checked and found it there on one of his visits. Also they had  
left note for us at stone pile where we had looked and  
where we left our note, but someone must have taken  
it. Got bus greased after lunch and stopped, then  
back towards the hills at 6. Stopped just before dark  
at end of paved road, 8400 ft. Vegetation rather similar  
to that west of Arequipa at 8500 ft. where we  
trapped before—dried desert weeds, occasional cactus,  
a few thorny *Severia*? bushes. Also at a moist  
place in a dry wash were some big clumps of a  
big grass. Had time to get out about 25 traps before  
dark. Short jacklighting after supper saw nothing but  
a *Phyllotis* in one of Anita's traps. Numerous screech  
flights at 9 p.m.

Dec. 22 6 *Phyllotis* in my live and 3 in Anita's. Prowled up the  
hill to Laguna Salinas and skinned. Then set out about  
50 museum specials at the bottom of a long macocha  
rock slide about 800 ft higher than camp and maybe  $\frac{1}{2}$  mile  
south; really the back side of Vichu/pehu. Dark, rocky,  
<sup>*Pyrophyllum*</sup> yaretta, some scattered tola and grass. Many tracks, but not  
much other sign. Shot one macocha. Heard *T. macrotis*.

Dec 23 Only 1 mouse, *Abodon arduus*. Temp at sunrise 30°. Morning  
clouded up early, some hail before 11 a.m. (There had been some during  
night also). Steady snow by 2 o'clock when we left for Koford's



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camp at  $135\frac{1}{2}$  km, then to follow tomorrow. Snowed most of the way, arrived just before dark, still snowing, about 3 inches on ground. Shot 2 *Mediumintraurus* at 101 km, 13,700 ft, and saw fox as we approached  $135\frac{1}{2}$  km. also herd of 17 vicuñas there. Still snowing at 8, about 4 inches on ground and slash on

pendler. No frogs chirping or seen.

Kofad camp at km.  $135\frac{1}{2}$  east of Arequipa, 15,000 ft.

Dec 24

Temp at sunrise  $32^{\circ}$ , about 4 to 5" snow. Temp. at noon, overcast,  $52^{\circ}$ . Went for long walk about 8 o'clock looking for tracks and trying to call fox with game call. Saw no *tiarum* or seed snipe tracks, only 1 set of vicuña tracks.

Occasional mouse tracks near rocky places. In fact, almost the only signs of life were near big rockshades or cliffs where there was least snow. Most evidence was tracks (and sight) of duck birds around the rocks. Saw 1 muscocha, blue coata, gulls, and ducks on the big shallow pond south of camp. Coata followed by half-grown young.

In afternoon went photographing vicuñas with Carl. Weather mostly overcast all day but very bright. at 8 a.m. with snow on ground but overcast my exposure meter hit the top, 1600. Got considerable sunburn on my 2-hour walk in the snow.

Dec 25

Started snowing again in the evening last night. 2-3 inches this morning, overcast with some blue sky east + west, temp. at sunrise  $29^{\circ}$ , at noon  $52^{\circ}$ . About 7 a.m. heard *tiarum* and went hunting but didn't get any. Then vicuña hunting with Carl. Many photos, plus another *tiarum* hunt. ~~after~~ On way back to camp saw 4? *Cordoba* feeding on a dead (shot?) vicuña. Went back to camp for the Horset and lunch. Snow all gone by 1 p.m. Then back to hunt



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17

the Condors. Missed with the Hornet and Carl with .12 ga and no. 4's couldn't bring down any either although surely hit them. Photos of captive *Chimichilla* and *Ph. boliviensis* in afternoon. Evening partly clear. No snow all day.

Dec 26 Temp  $34^{\circ}$  in a.m. Looked for tinamous but found none. Then drove with Carl & Anita to the weird rocks on the huata road. Several bird nests in arm-size holes. The hummer nest Carl saw a-budding (and shot at parent) was unoccupied. It was 7 ft above ground, stuck on rock under an overhang. Took photos of young caracara in nest and being fed. Hail & snow in afternoon but not in evening.

Dec 27 Tinamou hunt after dawn, but no signs. Then off to photo vicuñas with Carl & Mary, but only a few patches of sun and not much cooperation from the vicuñas. at 2 p.m. looked for lizards & frogs under stones near camp; found several. a cold wind from west came up about 2, followed by heavy snow about 2:30 to 5, total about  $2\frac{1}{2}$  inches. Sunset mild, no wind.

Dec 28 Morning sunny and nice for a few hours, then scattered clouds. By lunch time mostly cloudy with occasional blue patches. The clouds form overhead and churn around in such fashion that photography is quite unpredictable 2 minutes ahead.

Long & protracted tinamou hunt before breakfast, then photography with Carl up at the little lake north of the road and on the pampa west of camp. Some





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hail early in afternoon.

Packed up and left about 3:30 p.m. On the way out noticed that the ♂ of the herd of 6 vicuñas whose territory crossed the road east of camp was limping badly on front left leg. Nevertheless he was defending against a roving band of ♂♂. Camped among tota on the hill east of Tincofalca. Noticed that the road was much wetter for some stretches than others; precipitation must be quite local. Slopes + valley coming down into Tincofalca and up the other side are heavily tota (*Lepidophyllum quodrangulata*). Set about 40 museum specials among tota + bunch grass mixture and along a dry wall along the road at 5:30. Rained fairly hard about 7 p.m. and also rain and snow later in evening.

Dec 29 Tincofalca, 13,900 ft., 75 km. W. of Puno. Nothing in my traps, about 1/3 sprung by rain. Temp. at 6 36°, mostly cloudy. about 1/2 inch of snow on grounds. Saw 2 middle-sized tinamou, but both vanished before guns could be brought to bear. Camped early among ichu + stone walls 15 km. W. of Puno, 13,000 ft. Put out 40 traps + 2 steel traps for tinamou, but heavy rain and some hail in evening probably sprung many. Rain much of night.

Dec 30 15 km. W. of Puno, 13,000 ft. Morning rainy until about 7. Temp. at 7 38°. In my traps 1 *Hesperomys*, 1 *Bolomys* among and 1 *Phyllotis*. No sign of the ♀ tinamou. Photos of tinamou nest etc., then off to Puno to discover that it was Sunday and that 2 registered letters could not



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be obtained until tomorrow and Carl's letters could not be registered until tomorrow. So did some shopping and went up the hill again to 5 km W and camped in open ichu grass. Skinned, then set 30 museum specks along stone walls. Evening calm, some stars.

Dec 31  
MONDAY

Some rain during night but morning clear. Two Abodon bolivi and 1 Phyllotis in my line; more of same in Anita's. Also Chroocorys sublimis. Drove to Puno for mail + more shopping, then towards Juli. Gorgeous day with tubercle clouds, some plowing still going on, harvesting of tubers etc. Quinoa about half grown, potatoes and barley only  $\frac{1}{4}$ . Camped among stone walls and fields 4 km. E Juli, 12,500 ft. About dark wind came up blustering and sprinkles of rain.

Jan. 1

Some rain in night and until about 7, then day mostly cloudy. Much talking with passing Indians. Most know about bats but not how or where to catch them. Some also mention a "rata blanca" = ? Abrocoma? In my traps 2 Abodon bolivi, 1 Phyllotis, + 1 Chroocorys. In Anita's many Phyllotis + Abodon.

Long walk after lunch around end of our peninsula. Many potato patches on the south side, but the north east ("seaward") end of our peninsula is fairly wild with rocks, an aromatic shrub, a big thorn bush, some grass, and a few stone walls. The shore line is quite rocky-shrubby, even cliffs in some places. Found one good sea cave with a humming bird nest, small owl pellets containing insects, and droppings of either swallow or bat. Another good cave



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had a vertical 2-foot opening and a chamber big enough to stand in, opening partly occluded by shrubbery, but no bats, birds, or droppings. Found 3 other shallow caves along the shore, each with a hummer nest (one with eggs). Went to go back tonight.

Set about 40 traps along the rocky-brushy coast, and 4 small steel traps - all baited with mouse meat. Evening calm & clear with stars,  $\frac{1}{4}$  moon.

Great numbers of *Zonotrichia* on the peninsula. Have also seen ants of 2 sizes on several occasions around the lake (up to 13,000 ft.)

Jacklighting from 8 to 11 to the sea cave and back. ~~Found~~ saw no mammals but didn't do much poking along stone walls. The chapel of the virgin very spooky in the moonlight. See Hunningbird species account. Night almost balmy, temp at 11 p.m.  $6\frac{1}{2}^{\circ}$

Jan. 2 Boreous day, sunny. My trap line with only 2 *Chroocoma* and about 6 *Akodon*. Ants in the mild rocky part of the peninsula with many *Phyllotia* ( $\pm 8$ ) and *Akodon* + 1 *Chroocoma*. May have been many *Phyllotia* along my line but not attracted by mouse meat bait. Left about 3 p.m. Despite great beauty of the stone houses & fences and the Chapel of Virginia, and the good trapping terrain, couldn't stand the constant frozen staring and the perpetual struggle to prevent trap-stealing. Even so lost about 5-8 Museum Specials. Drove almost to Pucallpa, then turned back to a mild hill about 4 km. Camped just above the lake margin and put out about 10 traps baited




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+ 3 steel traps

with birdmeat, many rocks, boulders, various chaparral plants including the big green ephedra-like thorn. Evening mild & clear. a couple of flocks of 30± black Phais? flew down toward Bolinas in late afternoon.

Jan. 3 Phais? flew back eastward in morning. My traps had 1 Chondestes, 2 Alcedo bolini, 4 Phyllotis (at least one of them a big, shortish-eared fellow, but not ardens I think).

Drooped around hill to come on west side - a big hillside cave  but not really dark. a hummer nest on ceiling with large young, enormous numbers of bird droppings in one heap (several baskets), and a pair of barn? owls flew out, but could find no pellets.

Turned windy at dusk. Saw at least  $\frac{1}{2}$  dozen swallows go to roost in a hole in cliff, the opening only  $7 \times 4$ ". Put out about 15 more ns and 6 steel traps, all meat baited, all around the bottom of a cliff.

Jocklighted from 12 - 2 a.m. In the rear crevice cave (2 to 4 ft wide, 15 ft high, 20 ft. deep) caught a sparrow hawk which was warm but reluctant to fly. Clipped the net over the ~~bird~~ nest and got all 3 in the net but 2 got out in the confusion leaving me with a ♀ that I think was the mother. Her gullet temp. was  $36^{\circ}$ , the nest  $14^{\circ}$ , the outdoor air  $7\frac{1}{2}^{\circ}$ . In the morning when I released her, her gullet temp. was  $37^{\circ}$ . The ♂ standing guard over this turned out to be the rather dull fellow with mid-ventral brown streaks. The crevice at the head of the nest was only 8 inches wide, and the wall across from the nest was well splattered





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with feces.

Jan 4 Breezy weather all day. Temp at 4:30 p.m. 19°; supper outside at hot-spring time.

My traps held only 1 *Phyllotis*. Half worn. Antea with mites got 4 *Abodon* and a half-dozen *Phyllotis*. Shot 3 tent on the lake. Had to swim to retrieve one. Water not so cold but not enough O<sub>2</sub> for my swimming.

Worked back to the big cave on the west side of the hill. Netted the hummer nest, but one of the 2 (chicklings?) escaped. Both good flyers. Saw 1. Three horned owls quite tame around the cliffs surrounding the cave, but could find only 3 pellets - and these small for horned owls + think *Andimorphus* in one of them.

Reset some of the best traps of my cliff line, especially the steel traps baited with duck guts; then about a dozen MS along the road wall near grass.

Jan 5 In my tripartite trap empire only 2 *Abodon*. Antea with a long line (80 traps) got 2 *Phyllotis* + 5 *Abodon*. Swelled skunk and some fox. Left about 10:30, gas grub in Juli, then camped near a nice pot-holed cliff west of Stone. Visiochar, doves, finches, sparrow hawk pellets, owl pellets, a hummer nest and parent in a tall crevice-cave, and two caracaras came to roost at dusk. Also got the impression that small birds were coming from the surrounding much-grazed ridge to roost in the cliffs. Put out about 20 MS at the base of the cliff and along a stone wall. One *Phyllotis* just about dark. Missed hummer on nest at 8:15 p.m. The flew!



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Jan 6  
SUN.

Twothylotia in my line. Missed the hummer again. Sprinkle of rain, but then cleared up. Drove to Fairman and was greeted by Sr. Jorge and 3 of Eduardo's sons, almost immediately we found ourselves off on a hummer hunt at Hacienda Dorada. Shot 4. After skinning in the afternoon went poking with the 3 sons. On 2 occasions perdiz ran across the road, we stopped the bus, got out and looked for them and failed to find them although almost certain that we were within 10 yards of them. While down at the ford 2 sons went off to shoot a teal and a huallata; the oldest stayed with me. An indian was fishing with the standard hand line + worm. I got out my rod. The son outright laughed at my spinner and said fish wouldn't bite at that thing. He also said there were no fish at the place I chose. 1st cast: a good strike; 2nd cast: ditto; 3rd cast: a fish took spinner and all off with him. My last spinner, too.

Jan 7

Fishing in morning with Isaac, Edmund, and Alberto Jr. Eduardo. About 20 trout 9-14" between us. Also 1 perdiz out in the barley field below the hacienda. Isaac says that Festuca orthophylla, which he calls *paja brava*, is practically worthless as pasture, ichu is better, the little stuff between clumps of ichu most valuable of all. Fairman supports 4 sheep per hectare per yr.

After a rain sprinkle went off in search of a huallata nest. No luck. Then packed up and drove to our old camping place ~~back~~ across the river.



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- Jan. 8. Hda. Pánuviri. Looked for tinamou nests in the morning, no luck, and photographed flickers, but too cloudy. Also caught 4 more trout, then loaded for Tintupaco. Lunch on the quincea-pig-trees (pampa) but saw not a one. Because of the recent good weather (last heavy rain for 4 hr. this afternoon) the back road to Tintupaco is said to be still open, so we took that. Camped above Santa Rosa at 14,000 ft.
- Jan. 9 Heard T. tinamou in a.m. and up to the divide where we stopped to clean trail & hunt trees. Finally got a tree here — a big ~~tree~~ of arinus. Stopped at lunchtime between Pato Grande and Pampa Viscocha to look for rheas. Saw none, and no tracks, but Indian who lives here says they come out onto pampa in early morning. Put out 10 traps in front of holler on pampa after rain-hail storm.
- Jan. 10 Up at 3:30 a.m. to hunt rheas. Indian didn't show up, so at 5 wandered off into foothills, but saw no rheas or tracks. Many miners. Left about 8 for Tintupaco with frequent stops to look for rheas etc. Arrived lunchtime at our tree camp 5 km. E Lago Suko, 14,600 ft. Greeted by 2 squadrons of T. tinamou. Hail & rain in P.m. but evening mild. Full moon but frequently overcast.
- Jan. 11 Temp. at 5:45 a.m. 38°, no wind, foggy but sun soon broke thru until clouded over about 10:30. Hail shower about 11:30. Temp 12:30, cloudy & windy, 48°; 2:30 ditto 44°, snow & rain from 2:30 to 4, then calm but cloudy. Temp at 7 p.m. 34°.
- Jan. 12 Morning cold but calm, hazy. Ground frozen, little flowering plants covered with snow and frost; the cordons closed until sun reaches them.



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Watched trees in morning and checked census area. Weather about same as yesterday and day before - enough precipitation off roof to supply water needs.

TIME	TEMP.	HUMIDITY	CONDITION
5:30	26		
6:00	30	85	hazy calm
7:00	34	88	hazy - sunny, calm
8:30	42	78	" " breeze
9:00	44	78	sunny
9:45	48	74	scattered clouds
11:00	54	64	mostly cloudy, wind
12:00	55	63	" " "
2:00	49	78	rainy windy
3:00	46	83	" windy
4:00	41	88	drizzly "
5:00	41	78	cloudy, calm, not raining
6:00	39	93	" windy, " "
7:00	37	93	" " faint drizzle
7:30	38	93	" " " "

Jan 13. <sup>SVK</sup> Sprinkles of snow during night. Temp. at 6 a.m. 37°. Flies buzzing in sun at 8:15 with shade temp. 5°; no birds out. Various tree investigations including putting out 15 gopher traps. Yesterday's 20 NS caught 1 Elanomodonta. Also set 2 fox traps for fox that pestered Ainta's trap line. Weather about like yesterday but less precipitation in afternoon. Light rain in evening.

Jan 14 Lack of snow on ground in A.M. Hunted foxes but saw none, then checked two traps + hunted on my census area. Toad had mated several traps but no damage. One toad, 4 spring. Saw big white-tailed hawk perched on rock and then skimming area near house. Morning fairly warm, then wind shifted to bring hail + snow at 2.

Jan 15 Snow almost gone in morning. More tree hunting and baby sitting in morning. Weather not quite typical in that morning was cloudier than usual, very little sun, and rain-hail came earlier than usual. Considerable rain and hail, but evening calm, mostly cloudy.





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Time	Temp.	Humidity	Time	Temp.	Humidity
6:00	34°	78%	1:15	50°	64% cloudy
7:00	38	92	2:00	52	58 "
8:00	42	92	3:00	52	64 sunny but cloudy
8:45	46	84	4:00	48	68 cloudy
10:00	57	57	5:00	40	84 hail
11:45	48	72	6:00	37	
			7:00	36	

Jan 16. Temp. at 5:45 a.m. 34°, at 7:30 38°. ♂ fox in traps near bus. Much tree-watching & hunting in morning, fox skinning and tree-digging in afternoon. Very little rain in afternoon until near dark, then considerable rain-snow.

Jan 17 Nice sunny morning, heavy hail about 3 p.m., supper & evening calm with some clear sky. Walked up to the Tiwanaku desert after lunch (much photo in a.m.) to dig around the big isolated Festuca clump. Many tree tunnels in 2 layers, and 2 nests of chopped coarse grass (Festuca). Droppings mixed with the grass. No young or food.

Out in the middle of this desert found sitting on top of the sand an egg - most likely huallata.

Set about 20 museum specials across & around my census area. 13 gopher traps & 2 fox still set.

Jan 18 Weather strictly normal. Hail about 1 p.m. Evening no precipitation. Only 1 mouse trap sprung and this dropped off a short ways by fox. Fox tracks all around. Did 2 censuses of 3-foot-square plots in desert, one on my <sup>two census</sup> area and one a few hundred yards south of bus. In the latter 3-foot area were 17 "carrot" plants which weighed 71 grams after shaking the sand off. This doesn't include 6 little seedlings not weighed.



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or counted. Haven't finished the census from my two areas but it has a greater variety of plants and more individuals, but most of them smaller. Total weight will be much greater. Neither area picked at random, but neither with uniform vegetation either.

Put out about 15 museum specials across and along edge of my two areas, plus 2 more for traps.

Add to fauna of desert a small dove (*Metropelia aymara*)

Jan 19  
SAT.

Foti absconded with trap. Followed trail for about a mile +  $\frac{1}{2}$  but lost him in rocks. Most of morning botanizing.

From the 3x3 ft. area on the two census areas removed 220 "adult" plants and 14 seedlings = 234 plants. When washed and air-dried to remove surface moisture these weighed 477 grams.

Ants hunted lizards in the morning. Was happy to find both blossoms + insects in the stomachs.

Left about lunchtime and drove a mile or two toward Tutupaco, then out onto Pampa theatre. This is a perfectly flat green pampa with a couple of streams, many alpacas & <sup>a few</sup> sheep, and a few houses. The substrate is rather cindery, the vegetation, except for a few patches of Festuca, nowhere more than 2" high, mostly less than an inch. Only half of the greenward is due to grass (mostly closely cropped mats of the grass collected on the two census areas), the rest to a dozen or more tiny mat plants, such as *Senecio* etc.

Shortly after we stopped 6 *Phyllotis boliviensis* could be seen feeding near the bus. Also puna mice, <sup>*metropelia aymara*</sup> ground doves, and several pairs of hualtars. All except the



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hualatar disappeared during afternoon rain - they didn't even seem to know it was raining.

Morning with very little sun, rain in afternoon, light rain in evening.

Jan. 20  
SUN.

Traps had 1 Hesperomys, 2 juveniles Ph. boliviensis, and 3 adults. The Hesperomys out on the pampa not near any holes. No wonder they show up in owl pellets. At breakfast with binoculars counted 15 pr. of hualatas on the pampa. After some photography left for Tutyaco and was greeted by Juan Pulgar again. Skinned for a time, then drove off on a she hunt back toward Torata, then out the Rio Vicosha road. But saw goat stuck, so back home again. Then set traps in some nice rocky hills just east of Tutyaco village. Lots of insecta droppings, but also lots of crevices and dark cavity places with lush Culcitum, big Senecio, Poa pearsoni? etc. Evening calm with some stars.

Jan 21

Traps did well, 1 Ph. boliviensis, 5 Chrocomys, 6 Phyllotis darwini. The tola on this rocky yareta hill was almost all Lepidophyllum quadrangulare, and quite abundant. At our camp 5 mi. E of Jogo Roche, same altitude, L. rigidum was by far the more abundant ant in the F. estrea (Jaiza bravo they call it). I have seen quadrangulare at least to 15,000 ft; sometimes growing in midst of a clump of rigidum.

Left about 6 a.m. on mine truck up to the mines. Trucks apparently only go a few hundred feet higher than the Santo Rosa turnoff, which gives them a range up to 15,300 ±. Vegetation gets sparser as you go up and above 16,000 is



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is so snowed as to make trapping ~~with~~ prospects poor. A snowfall of 8" or so covered the ground for the last 500 ft. or so and 35 runners were out with shovels (and had been out for sometime) clearing the road. They were equipped with shovels and dark glasses; all with auto-tire sandals. The road seems to go within 1000 ft. of the very top of Tutupaca, which makes it over 17,000 ft. The runners live in 9 hovelts a few hundred feet below the top (end) of the road. and behold, right outside their battery of hovelts they have a soccer field! As we drove past their hovelts I saw a large short-tailed rodent run across the snow into a stone-wall. Might have been a guinea-pig domesticated. Snooped behind these hovelts a half hour later and saw 3 smaller rodents. Shot 1, an akodon boliviensis, also around hovelts were several finches (flavibrons?). These were only vertebrates that I saw (8 a.m. sunny?), but there was up to 3 ft. of crusty snow on ground and very little vegetation, sulfur smell in air, vapors from peak of Tutupaca and 1 or more vents in side. Ground probably too crumbly and porous to support vegetation, but across the valley could see green tops at this elevation (17,000)

Left Tutupaca lunchtime, and drove thru rain & fog to camp above Torta at 9500'. Our former Rio Torta campsite at 11,500? had blossomed with a mining settlement complete with galvanized roofs et al.

Set about 25 traps among creosote cactus and the shrubby herb, mostly along old decaying terrace walls - the terrace





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now mostly eroded away.

Much of the drive from Tutykoca above 13,000 ft is thru country rich in yaretta - mile after mile of good yaretta country despite much harvesting by the sulfur boys. They gather only dead heads. Some yaretta ~~also~~ as low as 13,000 ft. a couple of good quercus stands between 13 + 14,000 ft. Tried to count rings but couldn't - very close + indistinct; an 8-in. tree is probably 50-100 yrs. old. Many seedlings at one spot.

Jan 22 Saw a *moschus* as low as 11,200 ft, above Tarata. Three *Phyllotax* in my hair, 2 in antlers. Drove to Tacna. Found the desert + the washboards rather ~~bad~~ boring this time. The lower vegetation sparse, dried or drying. Camped outside Tacna, 3200 ft; some mild pineapple, dried herbs, one little legume in fruit. Spider holes.

Jan 23 Drove to Tarata, then just beyond + above to camp. Stopped for photo about every 1000 ft; for vegetation etc. see photo record. Road goes over a pass about 11,500 ft, still deserty, then drops down into the Tarata Valley, which is extensively tilled + irrigated to a lush green with alfalfa, potatoes  $\frac{3}{4}$  grown, corn, quinoa, + a little grain. The asequias and walls thickly grown with bushes + cacti. The road winds up the hill thru the tilled fields beyond Tarata, where we camped about 5 p.m. a most beautiful and idyllic location: steep canyon + mountain scenery, green tilled fields, <sup>scattered</sup> eucalyptus, a medley of bird songs (thrushes, crown sparrows, hummers).



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and the scent of *Cereus blossoms*. Set about 30 ms. along walls etc just at dusk, and the *Cereus* scent was particularly fragrant at that time.

Jan 24. ~~Seven big~~ Seven big coarse *Phyllotis* in my traps and about 10 sprung + empty. Skinned + photoed, then ground up the hill to 12,200 ft — still only about 2 km. (w.) from Tarata. Set traps (about 25) among rocks and brush at this level, which shows a mixture of wet-slope + *altiplano* flora. *Cereus*, hairy, and ovoid + tubular *Opuntia* cacti, several species of lowland bushes and ants; then to represent the *altiplano*: *Polylepis*, *Lepido quadrangulare* + *Baccharis*? (see spec.), *Ephedra*.

Not represented in yesterday's series of photos from Town - Tarata: 3500' - wild pineapple, small dry herb; 5000 - nothing; 8000 - tree cactus in dry washes.

Then drove back to 11,500' where the vegetation was a little thicker. There was neither *Polylepis* nor either *tole* species. Many cacti (*Cereus*, hairy, and flat-leaved *Opuntia*, joint cactus (with joints about 1" diam.), and a little joint cactus with globular joints), also a dozen or so species of shrubs, some a dozen feet tall, especially along the *asequia* - including *ocotillo* and the big robust green thorn bush that was common at Pomata. Practically no grasses either here or up at 12,200 ft. Ants put out a trap line near the big bushes along the *asequia*. Fog bank hung all afternoon about 1000' <sup>500'</sup> above us.

Jan 25 Trap results good. My line at 11,500' along road wall and stone wall then bushes: 4 *Chodan berleschii*; 13 coarse *Phyllotis*, 6 soft *Phyllotis*. one of the *berleschii* in afternoon, others were dry, hence



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may have been in morning - Anita had 2 berlepschii, 1 coarse Phyllotis, and 4 soft Phyllotis. I had about 35 traps out and about  $\frac{1}{3}$  of my catch was in the traps at 8:30 p.m. when I ran them by jacklight. Photo at 11,700' can serve as well for this level (11,500). Found a few Baccharis? (see spec.) here in bottoms.

Up at 12,200 among stones in quadrangularis, Baccharis? Polylepis, <sup>small</sup> cactus, and lowland shrubs, I got 2 birds (Tocos?) under stone shelter, 1 berlepschii, 3 coarse Phyllotis, and 3 soft Phyllotis (darmianii?), about 20 traps. Anita, among big rocks and Polylepis got 1 berlepschii and 3 soft Phyllotis.

Forgot to mention that I saw English sparrow at the smelter at Tinterpooca.

Skinned all morning, then drove up the hill further. Disappeared into cloud bank at 13,000 ft, so at 13,500' stopped, set a few traps, then drove back to 13,200, set a few more, then back to a big meadow at 12,800' where we set some more and camped.

12,800' - camp on grassy meadow. Considerable Polylepis, plus quadrangularis and Baccharis? and lowland shrubs including the "paint brush".

Some small cactus but no cereus, a few patches of hairy cactus in the canyon, no yareta. Red snipe (Thimothys) and black + white plover. Temp. 5° one cloudy dawn, 35° next sunrise after clear night.

13,200' - Baccharis?, quadrangularis, lupine, orange "paintbrush", Polylepis in places, some yareta. Above 12,200 the tall cactus begins to disappear and Polylepis becomes more abundant. Vireonids here among rocks + Polylepis.



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12,500' - quite open + cindery. *Gynerata*, *Pyrocephalum*, *Baccharis*?  
a little *Polydora* around rocky places.

Jan 26. Trap catch: at 12,800' we with 35 traps - 3 coarse *Phyllotis*, 1 soft, 1 *Marmosa*  
ants 30 traps 3 soft, 1 *Bolomys*.

at 13,200 we with 12 traps - 1 soft *Phyllotis*, 2 *Bolomys* (all  
among rocks + *Polydora*)  
ants 16 traps - 3 soft *Phyllotis* (along road wall)

at 13,500 we with 5 traps around stone ruins: 1 soft *Phyllotis*.  
ants 7 traps - 1 soft *Phyllotis* (along road wall)

Also shot a mouse, 8 small birds, running my traps.  
Spent much of forenoon and preparing specimens.  
Decided to stop another night to try for more *Marmosa*.

Ants put out about 30 traps for *Marmosa* and 30.

Morning mist + sunny, afternoon cloudy but no rain.  
Evening with stars.

Jan 27 Temp. at sunrise 35°, no ice. My line had only 4  
*Bolomys berlepschi*, ants had 1 soft *Phyllotis*, 2 *Bolomys*, and  
4 coarse *Phyllotis*. Skinned + botanized, then drove further  
up the hill. *Polydora* disappears at about 13,800 and at  
about same time bunch grass appears. Things were  
rather bare at 14,300 but varied locally.

Stopped for night at a wet seep at 14,600', late afternoon  
with some hail, mostly rain. Some cliffs with rock  
slides; dominant plant *Gynerata* but also a smaller blue-grey  
*Gynerata*, *Purpurea*, *Pyrocephalum*, *Sparganium*,  
small amount of *Festuca*, plus *Dactylis* etc in the seep.  
animals seen were *H. vellatus*, *microtus*, *Attagis*, one herd  
of vicuña (these are first vicuña seen on the ascent)

Put out about 60 traps, about 25 of them for *Purpurea*





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of which much sign whenever shelter rocks near the smelly sage. Some stars in evening.

Jan 28 Temp. at 6 33°, trace of ice. Morning cloudy, about  $\frac{1}{2}$  hour of sun at noon, then fog closed in again (as yesterday and day before. My traps line had 1 Peromyscus, 4 Abodon ardenius, and 11 Phyllotis. Ready to leave again just as fog blew in.

In addition to the Phyllotis put up, threw out 9 adult ♂♂ and 1 non-preg. ♀.

Drove up to 15,200', then stopped because it was too foggy to see the scenery. Skinned for a time, amidst fog, rain, and snow, then put out 30 traps amidst yareta, tola, mat cactus, Peromyscus sage, and crevice plants. Evening drizzly-snowy.

Jan 29 Still snowing lightly at dawn but soon stopped. about 1" of snow on bus + ground (snow didn't stay on hard-packed ground such as our tire tracks in gravel, made before the snow); still foggy. Temp 34° at 6:00 a.m. Heard Tinamotis, saw muscula.

Nothing in my traps, but in Anita's 45 were 3 Phyllotis darwini and 1 Abodon ardenius. Saw droppings of Peromyscus. Vegetation yareta, quadrangular, cushion cactus with crimson flowers, Peromyscus sage. Temp. was 34° at 6:00, cloudy, started snowing again at 10:00 with temp. still under 40. at 4:30, 39°; at 6:30, 34° (last two temps taken at new camp east of divide)

Despite poor visibility drove up to the divide (15,400'), then a little beyond. Western approach is rather barren gravel + rocks, but just over the divide Festuca and tola begin, and Ctenomys.

Camped at 15,300' among Festuca + tola — the open-leaved kind in the valley and the compressed (quadrangular) on the



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slopes. Some nice rock slopes + yareta nearby. Set 5 tree traps, and about 25 MS among rocks and across the sandy-gravelly valley. Anita put out about 40 MS thru bunch grass + tola.

no sun all day and little visibility.

Jan 30 Sprinkles of hail on ground at dawn, temp.  $32^{\circ}$  at 6 a.m. at 8 a.m.  $36^{\circ}$ ; foggy. Anita got 3 Abodon andersoni, 1 tucos, 1 abrocoma, 2 Phyllotis darwini; + 2 " ". The tucos is very big, paler. more rufous than apenninus, possibly one of the big Chilean species. One of the andersoni caught in afternoon.

Drove back up to the dike to look around. Some of the gravelly soil too stony for tucos; that with right texture rarely with enough food (although occasional Notolache and bunchgrass). Anita put out 30 MS and 5 steel traps in a great rocky talus with sparse bunch grass and crevice plants. Some droppings looking like muscle, abrocoma, and Puruma (although <sup>little</sup> ~~so~~ smelly, so). Had a total of about  $\frac{1}{2}$  hour of sun, near 10 a.m., then clouds, fog, + drizzle. Drove back to previous night's camp at 15,300 ft where I put out ~~some~~ <sup>7</sup> steel traps for more abrocoma and about 25 MS among big rocks on slope under cliff. Have vegetation but numerous muscle droppings and some smaller. also made 2 fox sets to protect the abrocoma traps.

Drizzle + snow all afternoon & evening.

Jan 31 Morning foggy,  $36^{\circ}$  at 6 a.m., 2" of snow on ground. None of my traps sprung although many mouse or rat tracks around. many looked like abrocoma tracks. Anita's line upon the dike caught 1 Phyllotis + 1 Abodon andersoni. She is



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convinced that *Pumay* + *Akroana* are there, and maybe *chirchilla*. No more trees in my traps.

Then drove on toward Puno. A few more tree droppings then a considerable hiatus of rocky bunch grass + tola. Then approaching Challapalca (13,800') is a wide sloping pampa of tola containing tree droppings. A swarming of *Polylepis* at 15,000 ft. After Challapalca (where they keep weather records) the road climbs up a gorge and opens out onto a pampa at 14,300' (Cafazo). Stopped for lunch near a set of tree droppings where I saw 2 dark-headed trees, no bubbling. That one, which seems to be intermediate between the Santa Rosa *opimus nigripes* and the big rufous one from Irvine. ~~Then~~

Then took the Pizacorn road from Cafazo, over a ~~the~~ divide, then down to the Pampa de Arcowarca. The divide is Festuca country with tree droppings. Left 4 gopher traps at fresh droppings to be picked up tomorrow on the way back to the Hano road. The pampa de Arcowarca is slightly rolling with large stretches of tola or of thorn bush (*Acacia viciifolia*). Tree droppings in a few places. Found 3 sets of fresh droppings near our camp and set 6 traps there at 4 p.m. Saw a pig dropping too, I think. At 6 had 2 trees, one of them a mottled peak, both dark-headed. At 6:30 set 20 ms around old corral in thorn bush and And set  $\pm 25$  in similar. Rain after supper. Some patches of sun during day.



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Feb 1 Pampa Anconmarca, <sup>13,700 ft.</sup> In my traps: 1 *Ph. boliviensis* and 1 *darwini*, plus 1 mouse, Anta had *Chroacoma* and big *Hesperomys*. These plus the little *Hesperomys* we caught wandering among the stones last night while going - sitting quiet 5 miles - 5 specimens.

Morning overcast. Picked up traps and drove back to the summit between here and Capazo where we had left 4 traps. 2 times in them. Skinned there until lunch time. The pass is 14,500 ft., *Festuca* and some *tola* (*rigidum*), *Polytrichum* up higher. Can see both pampas from there. Then drove back to Anconmarca to set traps and camp for night.

The pampa here is swarming with little yellow-footed to bigger toad. Also numerous lizards, *Therapsid*, a few *Huallata*.

Feb 2 Inch of snow on ground in A.M. My traps had *darwini*, *boliviensis*, + *berlepschi*. Anta's traps a *sublimis*?. Her line at 13,800 ft. was very successful: about 25 traps = 3 *sublimis*?, 1 *Hesperomys*, 1 *Elgmodontia*, + 6 *berlepschi*. Vegetation here rather lush with equal parts of *Festuca* + *tola* (*rigidum*) plus considerable *Pycnophyllum*. Gravel-stone soil, slightly too stony for many trees, but a few *Festuca* in bloom + seeds. Her line at 14,200, 11 traps around corral = 4 *darwini*. Rocky ground, ichu? (see specimen) + *tola* (quadangular). Some *Pycnophyllum*. Too stony for trees.

Drove back to Pampa Capazo to skin + set traps for tucos. Set among *Festuca* + *tola* *rigidum*. Illamas, alpacas, + vicuñas mixed on the pampa. Rhea hunt in afternoon, plus many spawning + empty two traps. Rain + hail in afternoon, evening overcast, calm. Just before dark put out 30 ms around





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a corral in *Festuca-tota*. Good sign. And about 10 cross-country set at two holes.

Feb. 3 Two *tuaca* in traps (one a young one), an *Elysirodon* in front of a two hole, and a *Ph. sublimis* in the corral. Think corn meal would have caught more (than volunteers).

Looked for *shear* + *tuaca*, then drove on. Had driven less than a mile when we came to a soccer field cleared out of the *tota*. There remained mostly *Pycnophyllum* and the little 2-inch tuft grass. *Tuaca* were sticking their heads out. Shot 3, and missed 2, hence 5 per acre.

Lunch by red rock canyon at 13,500 ft. (Kaford camp?) San Perdiz and vicuña there, two burrows but not fresh ones. Several hours of glorious sunshine here and on the way down to Mojacruz. Shot 4 tinamou at 13,200, gas above Mojacruz, then camped a couple of miles back the Santo Rosa road near the beginning of the *tota*. Some old tree droppings. ants put out traps. 13,000 ft = <sup>*Festuca, quercus, etc.*</sup> some *rigidum*, some *thorn*.

Feb. 4  
MON.

Heavy rain during night. Traps quite an assortment. Drove out onto *pampa* for a ways, then ~~camped~~ <sup>stopped</sup> in glorious sunshine for drying specimens, laundry etc. Vicuñas at 12,900 near Mojacruz and again near our guinea pig - *tuaca* *pampa* (*Quercus*). Heavy rain in afternoon. Drove on to our guinea pig place to camp for night. The *pampa* between Mojacruz and Antena is very wet - much standing water, road ditches etc. Most of it too wet for *tuaca* or guinea pigs, but our camping place is gravelly enough with visible drainage so that you can still drive on it. *Pampa* is also greener than ever, mostly due to very short tuft grass +



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After we had stopped and while it was raining & blowing a girl came to the bus and offered for sale a stack of flat guinea pig skins

Feb 5 morning sunny. A Chocoma in Anita's parakeets. Guinea pigs out in abundance shortly after sunrise, tress not until sun was well up. abundant & bubbling. Also house cat, hawk, mivers, gulls, black & white plover, and numerous toads or frogs. also lizards. and also llamas, alpacas (some copping) and sheep. Passing Indian called this Pampa de San Juan Capi.

Hawk pellets from Magocruz camp had lizard scales and fur that looked like guinea pig.

after hunting tress & g. pigs, drove to our Ontave canyon camping place to skin. River very high & muddy. Then in late afternoon to Pairumani. Sr. Jorge says this is a very wet year. 1948 was especially wet and then for 3 days a man on horseback couldn't cross the Rio Huayque. This year for 20 days no one has crossed. He said the road to Hacienda Jacalaca was impassable, so we shall postpone our two study there. Camped along the river near an adobe house upstream on H. de Pairumani. Put out about 20 traps along a cliff in ichu, along a limestone wall corral, and in an unused adobe building. Dies in middle of night but overcast in a.m. of

Feb 6 Traps caught 2 *Phyllotis darwini* and 4 of the big Kapor *Phyllotis*, one of these in the building. River still very high but much lower than yesterday.

at 8:30 went to aerial photography on the hill between the bridge and the Ontave buildings. Parts of this hill, especially bases of cliffs, have very rich lush vegetation. Thick tall bunch



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grasses of several species, etc. I have the impression that Ontario is neglected, little grazed. ~~the~~ The hill slopes also have a smattering of *Baccharis*, quadrangulare, & *rigidum*. Near the top <sup>(about 13,500)</sup> is a little *Polygala* (small), a stinky sage but not the *Humming* one, a showy red-flowered ~~plant~~ brush bush, and a few mats of *Pycnophyllum*. Plus, of course *ichu* & *Festuca*. In one of the narrow deep canyons or clefts were 2 horned? owls, and in a shallow cave a hummer nest containing one young ready to fly. Green gorget, brown mid-ventral stripe. Found one big black hummer resting far below me. Pictured him etc. as he wandered off 2 ♀♀ showed up and they <sup>all</sup> went off together to circle back over the top of the hill. Smelled the ♂ a couple of times.

Set 5 live traps near bus (old droppings), and some MS up near the caves & cliffs. Found another hummer nest in small but nice cave.

Most of day cloudy & hazy, little real sun. Rain in evening  
Feb. 7 Up at midnight to catch hummer, but it escaped - wide awake. One big *Phyllotis* in my traps. Night overcast, with some rain. Temp. at midnight outside 5°, at 6 a.m. 42°, at 9 a.m. 11°. Morning cloudy bright & scattered sunshine. Found flycatcher nest in another cave and collected parent <sup>(3616)</sup>. The cave was 5' wide, 10' high and 20 ft. deep. Nest on ledge half-way back, 7' high, made of twigs & grass and lined with llama or alpacas wool. 2 gawky young. Parent carrying at once a moth, a wasp, and a green grub.

Scared up a flock of doves, 2 of which took shelter in the big cave, then flew out when I entered. Humillato rooks in the fly-catcher cave. No sign of hummer around her nest.



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There are some cultivated fields high up among the cliffs here, probably 13,500'.

Drove to Puno outskirts. Sunny most of way with Tibetan clouds. Rain after dark. Potatoes in flower, grain headed but green, quinoa 1-2 feet tall and setting seed. Saw my back here and in the walked field along the river just above the bridge. "Wen-tit" (= ? = Codornis = ? Motacilla) singing at sundown.

Feb. 7. Puno all day. Sunny almost all day. Some rain & hail at 5 p.m. Camped at our codornis nesting place, but no trace of the ~~nest~~ nest that I stepped on. Much "wen-tit" industry at supper time. Put out 20 MS along my same old trap line. Night cloudy.

Feb. 9 While trying to triangulate ventriloquial "wen-tit" ants discovered a codornis nest only 15 yards  $\pm$  from the one I stepped on ~~Jan~~ Dec. 30. Vegetation here is predominantly ichu plus 1" green tuft grass, green mats, and a small amount of tota (quadrangular + Boerhaavia). Numerous stone walls, and small fields of potatoes and (small green unidentified plant). Decided to stay to watch nest. Traps held 2 sp. Phytotis, Hesperomys and during day abodon bolivi & Bobomys aureus. Many beetles walking over ground. Also saw orange-billed grey finch with black head. Temp. at noon 58; 2:30 62°. Sunny most all day. Picked up traps at 8 p.m. because Indian boy had spotted several. Tiawan not returned to nest.

Feb. 10 Still no sign of tiawan near nest. Photoed nest etc. Temp. at 6 a.m. 41; 7:30, 50°. Then left for Huvaylaca. Day mostly sunny until about 3, then (at Huvaylaca) much





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hail and snow. Collections on journey included:

1 *Motherea* at 50 km. mark. *Perdia* seen nearly but escaped.

1 *Huemul* ~~at~~ <sup>not proven</sup> at 61 km., 13,800 ft. Antlers hard. ♀ nearly.

2 *Perdia* at km. 104, 14,300'. 3 others escaped.

Feb. 11 Vicuña watching with Koford and Tiramon hunt in morning. 3+ inches of snow on ground in morning made tiramon tracking easy. More hail & rain in afternoon but only about  $\frac{1}{2}$ ".

Feb. 12 Morning mostly clear with scattered clouds. Vicuña watching in morning. 13, 14, 15.

Feb. 14 & 15. Huaylano. Mornings cool & cloudy, only a few patches of sun.

Feb. 16. Left about 9 a.m. with auto, Mary and all birds for km. 50.

Camped in valley at km. 53± at 3 p.m. Considerable rain beginning at 4 p.m. and drizzling on until 8 or later. Put out about

25 traps around old stone corral in thick ichu at 5:30 p.m.

Some of the grassland here is as thick & lush as any I have seen in the altiplano. Thick enough to find actual mouse runways. Warmer climate than Huaylano is shown by ants under rocks, snails, numerous moths flying at night. Flushed 2 *Motherea* while setting traps.

Feb. 17. Temp. at 6 a.m. 35°, noon 64°; sunny most of day, clear at dawn.

No rain. Traps overnight had 1 *Ambicomya picta*, 1 *Ph. osibel?*,

3 *Abodon bolivi.*, 1 *Bolomya aurea*. During day 5 more *aurea* and 1 more *boliviensis*. 2 of the *aurea* were caught at 8 a.m.

Spent most of day watching *Motherea* & *Mothesia*.

Feb. 18 more of same in traps. Weather clear in morning, some rain in afternoon. More tiramon watching.

Feb. 19 Traps (same line 3rd night) 6 *Abodon bolivi.* (one of them



just meaned, 1 unknowns factors, 1 *Neotoma*, 1 *Acromyrmex*, 1 young  
*Phyllosia*. temp - at 5:30 a m 36°. Just before dark  
 sent out about 12 more MS across the flats. Rain + hail in  
 afternoon, night clear.

Feb 21 Only one immature *Abodon bolivi.* in trap line. Much  
tanager hunting in morning, then drove back to Hwaylaco.

Day watching weevils with Carl, meeting rates & letters etc

Feb-24  
SUN? Premon watching with Carl in morning, then left after lunch for  
Jalisco. Stopped at the bottom of the first cresta where the  
road runs along a stream and crosses a small parícuta. about  
82 km. W of Puno, <sup>(km. 131 from Puno)</sup> 14,000 ft. Slopes mixed ichu and mothra  
grass with some Boeckeria and quadrangularis. Flats with  
stause ichu, mothra grass, Munzianthus, and "green", with  
put out about 25 traps, but heavy hail at dusk probably  
sprung many.



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- Feb 25. Morning clear, trace of frost, temp at 6 35°. Most of day sunny, no precipitation. Ants' 2 types but 1 Neotoma, 1 sublinis, 1 Akodon boliviensis, 1 Phyllotis darwini. Most of day watching Mothopsecta.
- Feb 26 Morning clear, temp. 31° at 6 a.m. Day sunny. Watched Mothopsecta. Camp is at km. 131 from Puno. Waited for truck to <sup>go to Puno for</sup> ~~grab~~ but no traffic.
- Feb 27 Night was mostly clear but not brilliant. Frost in morning and ice skimmers/puddles. Temp at 6 a.m. 30°; at noon hazy-sunny 60°. Windy in afternoon & at 6:30 p.m. very windy, 44°. <sup>still no trucks</sup> ~~to Puno or Joloca~~
- Feb 28. Morning clear, frosty, 24°. Day all clear, again becoming quite windy about 2:30. Add to local flora the toa rigidum, hence all common tolas here. Saw ants both today & yesterday. Ants saw a cat - pretty high. Watched Mothopsecta and waited for a truck to Puno or Joloca. None.
- Temp at 6:30 p.m. 42°, windy
- Feb 29 ~~March 1~~ Morning clear, temp. at 6 26°, at noon 57°. Tinamou hunting in morning. Two trucks went thru but no room for more passengers in the one I was able to hail.
- On 3 occasions while I have been creeping upon tinamous a llama has spotted me, ~~and~~ approached, and made a loud call sounding like a 5-yr-old Ford V-8 starter. It didn't disturb the tinamous.
- Truck to Puno about 5. Back part of spring near Tinajas (5 tons of batteries and big oxygen cylinders) but rode Puno by midnight.
- March 1 Shopping in Puno in a.m. No trucks leaving for home from Puno, so went to Joloca (2 sales excursions, 2 hrs.), Did some shopping, visited Duffy, who had a young spectacled bear for Kofork, then left for home 7 p.m., arrived 2:30 a.m.



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- March <sup>2</sup> Morning overcast early, no ice, but later sunny. Took turns watching nest & other tinamous. Koford called at 3 p.m. after we had sent them a note up the road in a truck. Evening clear.
- March <sup>3</sup> Mostly sunny in morning, but raining after about 3 p.m., turning to snow. Watched tinamous. Put about 20 ms. in grass plus a little tota along stream bed. Baited a few Neotomas - like droppings.
- March <sup>4</sup> Scattering of icy-snow on grass in a.m. Temp. at 5:45 30°. Morning mostly sunny, rain-snow in mid-afternoon. Traps held 1 Neotoma + 1 Abodon boliviensis. Watched tinamous and looked for nests.
- March <sup>5</sup> Traps held 1 Abodon boliviensis, 1 Chrysomys, 1 Hesperomys. Temp. at 4:45 49° - thundery cloudy. Watched tinamous, then at suppertime drove up to Koford's to get our kids back. Picked up traps line. Hail in late afternoon. Shot black cat.
- March <sup>6</sup> Morning first clear (temp. 30°), then foggy for about 2 hours, then sunny again. Rain-hail in afternoon, evening clear. 39° at 6 p.m. Bode goodbye to the 2 guinea toucans, then watched tinamous.
- March <sup>7</sup> <sup>until 4 p.m., then cloudy till 7 p.m.</sup> Sunny all day, scattered clouds. Temp: 6:10 a.m. 26°; 10:30 a.m. 52°; 5 p.m. 8°; 9:30 p.m. 38° clear.
- Have seen only 1 murina at this camp, and so far no signs of foxes or deer. Butterflies & grasshoppers fairly abundant, some lizards, lots of toads, especially some tiny ones. Watched tinamous all day.
- March <sup>8</sup> Morning clear & sunny. Temp. at 3 p.m. 62°, felt hot, hats in shorts etc. Carl came down in a.m. to see tinamous etc. ~~at camp~~. Clouded over & windy at 3:45; night clear.





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- March 9 Temp. at 6 26°. Ice in bus. Hunted tinamous with Carl, watched in afternoon. Day almost all clear, no precipitation.
- March 10 Frost, temp. at 6:15 34°. Day almost all clear, no precip. Watched tinamous up at waterfall. Saw hummer by cliffs there. Put out about 35 MS along foot of cliff, then in thick grass clumps up along waterfall canyon, then over sparser hilltops to my watching blind.
- March 11 Traps held 6 Chrooceryx and 4 Alcedo boliviensis, then 1 Chrooceryx later in day. Rain from mid-afternoon until evening. Watched tinamous and hunted.
- March 12 Cloudy in early morning but cleared about 10. Traps held 2 Chrooceryx, 1 Miotomys, 1 Ph. sublimis. Watched tinamous. Koford came for help in afternoon and stayed overnight. No rain.
- March 13 Cloudy in morning (but frost), clear in afternoon. No rain. Tinamon hunting in morning with Carl. One Ph. pictus in traps. Shot an ash-breasted finch for Carl. Other common birds here are Cinclodes, <sup>Thraupis</sup> Zonotrichia, Sialia; others less common are a hummer, a grey-headed yellow-bellied finch with grey wings, Vireo, Aethya, parakeet, caracara, flicker, no rain. Several passer-by call this locality "Toroya".
- March 14 Same old trap line had 1 2/3-grown Chrooceryx, 1 1/2-grown Chirichthys, and 1 Miotomys. Several of the other Chrooceryx on this line have been sub-adults. Picked up these traps. Watched for tinamous on flota. Put out another line of 20 traps in grass-good brushland, and 7 along base of cane-cliff. Watched at nest in afternoon. Day almost all sunny, no rain. Evening clear, 42° at 7:15.



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March 15 Morning overcast, no frost. Most of day cloudy, considerable rain 2-4 pm, but evening mostly clear. 2 Akodon bolivi in my traps (1 adult ♂, 1 half grown) in tola-grass. Quite a few openings & empty. Watched tinamou nest. After dark out on flats saw a glow-worm in the grass (= a  $\frac{1}{4}$ -inch larva, quite luminous).

SUN

March 16 Day mostly clear, windy in afternoon. Traps held 1 Chrysomys, 2 Akodon bolivi (one <  $\frac{1}{2}$ -grown), 1 Ph. pictus, and 2 unknown mice. These look like young pale pictus but have white patches behind the ears. Several openings - empty again both along base of cliff and in the tola (the mystery mice were in tola). Picked up the tola line and put 5 Orsted traps along the base of cliff in hopes of Abroscopus. Abundant Myiarchus droppings here but have seen no Myiarchus.

at 7:30 the telegrafista came up from Tinajales on his bicycle to tell us of 2 Tinamou nests, so we drove down and had a look at them, then back here at lunch-time so as to not miss too much at this nest. Quite a bit out a tola line. Night clear, windy.

March 17 Heavy frost, temp.  $24^{\circ}$ , ice in bus. Nothing in my traps. Nest 1 still incubating, so left Anita in charge of it and walked down to the Tinajales nests to spend a day or 2. 1  $\frac{3}{4}$  hrs to nest 3, where I built a blind of stones.

March 18 Watched nest 3. Heavy frost & some ice. No rain.

March 19 Frost & ice in a.m. Watched nest until 11:30, then home over the ridge rather than via road. Temp. at bus had been  $24^{\circ}$  both mornings. Light rain in afternoon. Evening overcast.

March 20 Morning cloudy-misty. Temp.  $34^{\circ}$  at 5:50 a.m. Most of day



R. PEARSON

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Looking for the clutch of tinamous. Almost blind at new nest #4. Afternoon clear but windy.

March 21 Morning frosty, 26°. Walked to Tinicopulca nests and beds. Decided to move camp to near nest #4 but got stuck going across poncha. Rain - hail about 5:30 to 7:30+.

March 22 Got Buena unstocked, then drove to Tinicopulca to check nests there. Then back to nest #4 where we watched all afternoon, then checked and found eggs stolen. Rain in evening.

March 23 Day mostly cloudy, light rain in late afternoon. Photos + plants collected in morning. Then hunted tinamous without much luck.

March 24 Cloudy in a.m. Hunted tinamous around Tinicopulca without luck till 9, then started up hill to see Koford. Met Carl on way, so we all went to Tinicopulca and hunted tinamous till 3, then fished. Rain 5 to 7+.

March 25 Morning cloudy till about 10. Photo of *Notiopecten* nest #2. Carl et al. came down so we devoted day to fishing at Tinicopulca. Caught 5 rainbows, the biggest about 18", rest 14 or 15, very deep-bodied. Two other (or more) big ones got away with 4 specimens. No rain but evening cloudy. Mary discovered Tinamous nest by snow-tracking in the a.m.

Anta's 12 traps in total quadrangle put out noon yesterday, by 8 a.m. today had 6 *Abodon boliviensis*, 2 *Chocomya*, 1 *Ph. pictus*, 1 *A. aeneus*.

March 26 Took a quick pass at the big trout, but caught only 11-miles. Then up to drive to help watch Koford's Tinamous nest. Some hail at 3-4, then snow about 7.



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March 27 H. naylor. Temp 23° ~~rainy~~. Went to mountain tracking in snow and found another nest. Numerous mouse & vole tracks. Watched new nest. Some hail & rain 3-4, snow about 6:30

March 28 About 3/4" snow. Clear. Temp 25°. Watched new T. mamotte nest and baby sat. Photos of vicunas & muskoxen. Scattered clouds, but no precipitation. Some rain during night

March 29 Up at 5 a.m. to watch T. mamotte nest #2. Morning cloudy, some light snow about 8. Photos of nest #1 at 11 a.m. Still cloudy at 2. Temp. at 1:30 was 42°, at 3:00-45°, cloudy. Heavy snow at 5 till 6:30. 3/4" fell. Sky clear at 8:00 p.m. Set 3 steel traps near nest #2.

The caprock here at H. naylor also shows much glacial polish and striations running N/E-SW.

March 30 Morning clear, temp 6 a.m. 25°, 3/4" snow. Tracked vicunas, took photos, then watched nest #2.

March 31 Morning clear & sunny. Ran traps with Arroy (Pernoway), then watched nest #2 with Arroy & Carl. After lunch to Tinicopalea where they had another *Neotoma* nest for us. Camped by bridge.

April 1 Watched nest #4. Morning clear, frosty, temp. below 26°. Afternoon clear also. While watching nest from about 1 to 3 p.m. heard mosquito-like hum of swarms of gnats. Don't remember having heard these before on altiplano. Evening clear with wind from east, but not cold, 46° at 7 p.m.

April 2 Nest destroyed overnight so left Tinicopalea without regrets to meet Indian woman with 2 more nests up the grade





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SE of town. Drove back into the tola and camped near the nests.

April 3 Shot the 2 birds on the nest last night, plus 3 others. Dissected etc until noon, then drove as far as Denstua for the night. Hail storm about 7. Saw an ant at km 104, ~~at~~ 14,300 ft., in early afternoon. There is some cultivation of what looked like a kind of potato around Lago Salacocha, 13,700 ft.

April 4 Visited Duffels in Juliaca, then drove to Puno

April 5 Shopping in Puno, then camped between Puno & Juli. Harvest time along the lake: grain, quinoa, potatoes. Rain after supper.

April 6 Juli to Hacienda Localosa. The quinoa in the Juli-Porata region almost all harvested but much still standing between Porata & Huacabani. The little low plant with sorrel-like leaves is oca - quite colorful when nearly ripe. Morning cloudy early, then scattered clouds, afternoon mostly clear. Some rain in morning. Road from Porata to Pichipichuni miserable - complete with stone km. markers. ~~the~~ Muddy, rocky, and grass-grown. Good two panfros at Pichipichuni. Camped at one of these after meeting the Yugoslav at Localosa. He did not distinguish between trees & guinea pigs, and had 3 chains with picks dig out a guinea pig for us.

April 7 Morning clear, scattered clouds in p.m.

TIME	TEMP	HUMID.			
6 a.m.	25°		2:00 p.m.	57°	28% (scattered clouds)
6:30	25	62%	3	58	25 "
7:30	37	70	4	58	25 "
8:15	38	57	5	53	33 "
9:30	46	46	6	44	47
10:30	53	30	7	44	34 clear
11:30	59	16	8	43	33 falling clouds
12:30	61	25 (scattered clouds)			



1952

Watched + collected trees

April 8 Morning clear, afternoon scattered clouds, slight amount of hail + rain - some hailstones 15mm. diameter. Evening calm, mostly clear. Watched + collected trees, but mostly dissected those collected.

6:00 a.m.	22°		2:00	60°	23% (scattered clouds)
6:30	22°	82%	3:00	59	25
7:30	29	69	4:00	58	40 (sprinkle)
8:30	39	41	5:00	51	58 > Hail
9:30	46	28	6:30	46	71
10:30	50	33	7:00	45	45
11:30	54	26			
12:30	60	24			

April 9 Morning clear, temp 6:15 was 18°, noon 58°, 2 p.m. 61°. Afternoon scattered clouds, no precipitation. More tree studies and some photos. Indian visitor brought in some ground-up toasted? grain which he called "kenyame", which grows here on 1-foot branched plants that are now turning red and being harvested. He also said that oca is ~~found~~ grown only near Juli + Paracuta.

Yesterday's traps (30 m.s.) set around border of the 90-yd quadrat caught one Ph. boliviensis overnight and one young Ctenomys + a lizard during the day.

April 10 Temp 6 a.m. 23°. Morning clear, scattered clouds in p.m.

Tried till 11:30 then left towards Pizocorn. Miserable road. Camped near cresta SW of Pizocorn. Country passed there mostly grass, little tala. Some nice rocky-cavey canyons. Passed some lush tree-chopping near Hroacullini, 13,100 ft., but could see no trees. Probably opuntia or leucodan, not peruviana. Traps caught 1 Chroemys and 1 Hesperomys sp. nov.

= Salicoryza



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April 11 Collected Thomomys opimus along road in morning. Stopped for lunch at river by Chalchaltas. River was warm but despite sun a cold wind was blowing. Then drove to our living camp where I put out two traps. Temp at 4:30, sun still up, 44° at 5:00, 36°; at 9, 32°. Went up to the rim rock at 5:00, where I had seen rat tracks in snow, and put out about 11 steel traps. Then waited for dark and jacklighted but saw nothing. Night clear + windy.

April 12 Light falling clouds in a.m. and most of day.

Tended two traps and caught up on skinning. Sun all day. Put out more steel traps along rim rock in

6:00 a.m.	30°	3:30 - 44°	> sun down
10	45	4:30 - 40°	
11:15	46	5:00 - 36	
1:30	48		

evening and again jacklighted, but saw nothing.

Shot 3 Microtus in a.m. 2 ♂♂ and 1 recently-parturient ♀

April 13 Temp. 23° at 6 a.m. No traps touched. More trapping in a.m.; then drove down to the Pampa de Titire and put out two traps. Caught none during mid-day but ~~5~~ at about 3:30. Terrain is sloping sandy desert with tola rigidum, bunches of Festuca, and a tiny bunch grass. Put out about 20 m.s. and Anita put out a line.

April 14 Temp. 20° at 6 a.m. Only 1 andersoni in my line. Anita's line with 2 andersoni, 1 leucopachius, 4 Echymodonta (2 of them juv), and 1 sublimis?. Some of the andersoni immatures. Hunted twice in

~~afternoon~~ morning + skinned. Traps not as successful as yesterday. Left at 4 p.m. and drove to Capazo where at dusk I put some two traps in the colony where we shot our before.

April 15 One Microtus in my traps. Anita sighted Microtus about 8 a.m. Got 2.



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Then left for Mayocruz, Santa Rosa. About an hour to go up in Mayocruz - a process involving makeshift cans, rubber boxes, cardboard funnels, short measure etc... as in other parts of Peru. Put 7 "latas" <sup>LATAS</sup> in my 30-gallon tank.

Then to just behind Santa Rosa for night. Road abominable, no signs of tracks of Rizzo's or Tutupaco tracks.

April 16 Drove to the river below Jorge Lake and stopped there for lunch, haircut, wash, etc. in preparation for dry camp at Tutupaco. Just leaving when Steinways drove up behind me in their jeep pickup on way to Cardenas. Gossiped, then to our true camp at Tutupaco where I put out two traps at 5 p.m. about 12 fresh diggings on the census area.

April 17 Morning clear, afternoon scattered clouds.

6:15 - 19°	10:30 - 50° 24%	3:30 - 50° 15%	↓ scattered clouds
7:00 - 25° 73%	11:30 - 59° 13%	4:30 - 46° 24%	↓ clouds
7:30 - 27° 69%	12:30 - 58° 8%	7:40 - 40° 50%	↓
8:00 - 37° 54%	1:30 - 55° 9%		
9:00 - 45° 32%	2:30 - 56° 9%		

Day devoted to traps. Evening partly cloudy.

April 18 Morning clear, afternoon partly cloudy, evening clear and calm.

6:00 - 19° 50%	12:30 - 56° 11%	4:45 - 47° 26%
7 - 23° 78%	1:30 - 54° 15%	5:40 - 40° 45%
8 - 32° 66%	2:30 - 53° 17%	7:00 - 34° 50%
9:30 - 43° 34%	3:30 - 51° 21%	8:30 - 32° 52%
10:20 - 50° 16%		
11:30 - 55° 11%		

Day devoted to traps & lizards.

April 19 Watched lizards till 9:30, then drove to smelter at Tutupaco to pay respects to Sr. Pulgar.

3:30 a.m. - 21°	7:15 - 24° 79%
5:30 - 21°	9:00 - 38° 30%
6:00 - 21° 77%	9:30 - 42° 24%
6:40 - 22° 82%	

Then at lunch time drove

up the Volcan Tutupaco. Probably because of the volcanic nature of the soil (ash, gravel, etc.) the vegetation does not mount very high. No streams from melting snow, no green reefs. Last trees at 15,800 ft. Lizards here too. Some yustos among quite bare at 15,900 ft, first snow about 16,000 ft. The miner's shacks ("campamentos")





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are at 16,500ft (including soccer field) and the end of the road at 16,900. The road actually reaches around to the other side of the volcano at about the same level, but was still snowed in. Many drifts several feet deep. Put 13 traps in and around the miner's huts at 16,500ft. The <sup>huts</sup> have goats - burning oil-drum stoves, turtle water on ground, plus assorted clothes + ponchos + food spread around. Temps. at 16,900ft:

2:30 - 41° 41%

2:45 - 38 51 - hazy

ran over thermometer + hygrometer  
new therm.

3:15 - 35 66

3:45 - 34 79

4:00 - 31 82

Apr 20 4:30 - 30 82 } sun mostly obscured  
by low lying  
clouds but much  
blue sky  
sunset 5:25

5:10 - 27 90

5:35 - 25 98

6:05 - 23 98

6:30 - 22 92

7:30 - 22 86

8:30 - 20° 73% night clear

9:10 - 18 76

5:45 - 21 27

6:15 - 21 27

7:30 - 23 27

8:00 - 25 28

8:30 - 27 31

campsite, 16,500

9:30 - 34 24

10:10 - 34 26

Then drove back to the pampa. While stopped for lunch Amato spied 13 rheas, so after lunch pursued them in Bussey for photos. Then back to our two campsites to finish skinning etc. Sunny all day, some clouds. Evening clear

April 21 Sunny day, 6:30 - 21° 9:30 - 45° 1:10 - 55° - 18%  
7:30 - 24° 10:10 - 50°

came in the morning to return my rifle - with scope broken. But they forgot to bring our gas can, so we had to drive to Turisimani afternoon, then back to campsite at dark.

April 22 Morning clear: 5:45 - 18° 9:30 - 44° Took notes of tortoises and lizards, and re-took the  
6:55 - 23  
8:25 - 40

examination of desert plants. Watched lizards. Left for Caceres at lunchtime, arrived before supper. On the Cochabamba road in from Potosí Grande saw no rheas and not a single vicuña. Lots of alpacas & llamas just below (before) our campsite. Evening partly cloudy. No snow on Ichaesi

April 23 Cochabamba. Morning clear, then scattered clouds about 10 a.m. Put out 7 new traps, then dissected lizards and took photos of lizards.



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7:30 P.m. - 35°	11:15 - 52° 46%	7:20 - 33° - 68%
5:45 a.m. - 22°	1:00 - 54° 39%	8:15 - 32° - 69
7:30 - 34° - 68%	2:00 - 54 27	
9:30 - 47° - 57%	3:00 - 53 36	
10:45 - 50° - 48%	4:15 - 48 38	
	6:00 - 37 60	

afternoon mostly sunny. at 2:10 picked warmest little crevice on SW face of big rocks by camp and found temp. of 42°C. Numerous other crevices in full sun in mid thicket. Quick-reading thermometer in sun = 21°C. Traps caught 1 insect officinalis. Evening clear, clear.

April 24 Santa traps had 1 big abroscus, 1 abroscus arduus, 3 young darwinii.

6:00 - 22° - 100%	11:40 - 49° - 37%	4:40 - 47° - 35%
7:10 - 26 - 93	12:20 - 51 - 32	5:20 - 48 - 35%
8:20 - 31 - 90	2:20 - 52 - 17	6:45 - 38° - 36°
9:20 - 44 - 46	3:15 50 - 24	

Still frost in bus shadow at 10:10. Day with fewer clouds than yesterday. Focused with digital thermometer, then photos of vicinians in afternoon. This is still the best viciniana colony known of. While sitting in the viciniana colony waiting for sun for photos - buses surrounded (and bitten!) by gnats. This is the first time I have been bothered by insects on the althaus.

April 25 Up at 1 a.m. to look in mine tunnels. Shot 1 yellow & grey finch in the canyon mine at same perch where I shot ground tyrant in Jan. on cliff side, small shelf, then built-up ramp of droppings & remains of candle-droppings on a tea shoppe bottle.

Outside temp. was 23°F, temp. at nest was -1°C.

Could not retrieve bird until morning so don't know its temp.

1:00 a.m. 23°	7:25 - 30°	9:25 - 42°	11:40 - 49°
2:00 22°	8:00 - 34°	10:50 - 48° (still frost in shadow of bus)	12:40 - 49°
6:15 22	8:25 - 38°		

Night clear and day all clear. Another abroscus in Santa's traps, and 2 sullivanii in Carol's rear camp. Much stock grazing around camp (sheep, alpacas, llamas, & burros). Glacial striations at camp run N and S.

Left 1 p.m. Saw no vicinians on way out to Paster Grasshopper crossroad. Stopped at dusk a couple of miles east of Santa Rosa. Hunt out about 20 traps in rich grass-lands.



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April 26 One toad in my traps. Temp. 6 a.m.  $25^{\circ}$  (Santa Fe), Drove to Pampa Quemada where I shot 3 trees. Lots of quince pigs around. Then to our camp at the gorge of the Rio Huayab. Warm sunny day,  $55^{\circ}$  at noon,  $40^{\circ}$  at 7:30 p.m. Put out 5 gopher traps at old tree digging. Anita was fishing at 3 p.m., but caught 3 11" rainbows when an Indian came up, asked if she wanted to buy a fish, and produced from his pack a 14-pound 31" rainbow trout! We bought it for 6 soles = 50 cents USA.

SUNDAY

April 27 Up at 12:30 a.m. to look in caves. Temp.  $25^{\circ}$ . Shot a tyrant in one cave, hummer nests in 2 others but no hummers. Temp. at 6:15  $18^{\circ}$ , clear. Nothing in my tree traps. Took fishing movies (but no fish), then left for Poca-laca. One nice pool in the Huayab gorge just above Hda. Antares looked good for movies, so stopped for a few minutes there. Over a hundred trout over 8", mostly 10-12", were visible as we approached. Anita lost a spinner to a big boy, and almost landed another  $1\frac{1}{2}$  footer when the spinner broke. Didn't get under way until after lunch, then made good all the way past Pomata. Camped just past Pomata on the Puzos road. Wheat & potatoes being harvested along the way. Quince all in.

Temp. of sleeping tyrant at 1:00 a.m.  $37^{\circ}$ , core  $5^{\circ}$ , outside  $25^{\circ}$  F.

April 28 Ice on puddles in a.m. but night not very cold. Drove early to Pichipichini, road much improved. Hunted trees on the census area, and took movie of a fox hunting quince pigs. At 4:30 left for the spot west of Huerfano, where we hope to catch Chrysomelids. Put out 12 gopher traps just before dark.



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April 29 10 km SW Huaculim, 12,900 ft. Temp at 6:30, 23°; 1 p.m. 68°. for other temps see logbook. One town in trip, 3 springs, 1 with fur in it. Aunts got 2 others under skin and took blood temperatures. Left 1 p.m., washed laundry in river, camped just short of home.

April 30 Drove to Puno for shopping and fixing wheel alignment, then to Duffie's in Jibica after supper.

May 1 Shopping in Puno, then off towards Pucallpa. Stopped for lunch just below Pucará. Dozens of 11" trout visible in the river, and one monster swam off as we approached. In 2 feet of water, middle of 150' river he made a wake that washed up on the shore. We found a dead, recently-spearred, 31" trout in the water, and aunts caught 2 11"-ers. Several Indians were bow-fishing, and a squadron of 8 equipped with spears, band nets, and spears were working downstream and had caught several 2 footers and at least one bigger one.

Camped between Ayacucho and Santa Rosa, <sup>12,900'</sup> in a hay field. Not bunch-grass, but a real field in which hay had recently been cut. Must be the winter east-side already. The yowen's bats change species at about Pucará - now the flat, ruled, cuzco type. Evening calm, warmish, partly cloudy.

Duffies say that many altiplano Indians have moved down to the lowlands, but that they die like flies. Their TB, for one thing, catches up with them. Others are unhappy and come back home. Many Indians actually own their land, but in each generation it is parcelled out





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to more + more descendants. Their mind now runs 2 rows of potatoes. Number of children is large but survivors few. Vitamin A deficiency serious + widespread around Jubaica - and elsewhere. Teeth good in some regions of altiplano, poor in others. Mrs Duffie feels that IQ is generally low. Passed a fence today!

May 2 Temp. at 6 a.m. 22°. Traps had 6 Abodon bolivi. + 1 Hesperomys. Tails of Abodons seemed long + thin. It is interesting that the grass is much higher here, despite equal cold at night, and even before crossing the divide (Ja Raya). Took off early and drove all day - down the Urubamba Valley to below Urca, then up a dandy road to Paucartambo, then up the next crevice to camp. Because the road was one way today (our way), we had to do most of scenic part to Paucartambo in the dark. arrived at the summit (11,500') where the Tres Cruces road branches off at 11 p.m. and camped.

The pass at Ja Raya is only about 14,000 ft.; good pasture near there and some slopes on both sides of divide with "pineapple" plants. On the way down the east side, saw field of oats? at 13,600'; at 12,600 ft. eucalyptus and cherry. Chief crops from 13,000 down to 11,000 or less was wheat, which was ripe and being harvested. Much threshing by driving oxen and buxoms round + round on heaps of it. at 12,300 ft (see photo) and even higher the general aspect is so lush with trees of several kinds, bushes, weeds such as Rumex, grain, etc. that I no longer consider it altiplano. I feel that perhaps the limit to altiplano should be about 12,500 on the east side. Perhaps 11,500 on the west. First corn seen at 12,100 ft, considerable more below



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this, all ripse Poplars at 12,000; willows slightly lower. Quinoa in small amounts down to 10,950 ft. at 11,200 ft was a stretch with the big green thorn and the showy tiger grass that we encountered near Porcota. Lots of yellow <sup>calceolaria</sup> Scrophulariaceae in bloom

On the way up the hill from Huambatio to Huancorane at dusk saw a bat flying at 11,700'.

May 3 Morning clear. Some frost. By the light of day we found ~~that~~ the view from our stopping place on the ridge top most impressive, but no match for the tremendous sweep to be seen from Tree Cress, to which we drove after breakfast. Jungled foothills were poking up through a lake of clouds, and far above all this stretching out over the lowlands was a sea of cumulus clouds. The low clouds must have been at 3 or 4 thousand feet; the cumulus at 6 or 8 thousand.

The road from the highway back to Tree Cress runs along the ridge. Mostly grassy, but tongues & patches of cloud forest, cycads, numerous ponds also. Sphagnum in many places (but mostly dry sphagnum), many "alpine" flowers including dwarf blueberries.

A mile or so before Tree Cress we saw a hunter with gun, and just as we saw him a big deer jumped up and ran down the steep slope. Either a brown or white tail. This is the first man we have seen afield in Peru with a gun this trip.

Altitude of Tree Cress 11,900 ft.

Clouds thickened after lunch, then some started reaching up to our level and blowing past. Later the clouds lowered again and at night were a sea over the mountains.



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Put about 25 traps along base of rocky outcrops in thick grass, some *Lycopodium*, tuberous legumes etc. No sign. Arita put 45 in grass, around stone-house ruins, edge of cloud forest, and in cloud forest. Evening clear.

May 4 Morning clear but foothills and jungle all cloud covered, the upper cloud level only a few hundred feet below us. Temp at 6:15 40°, but frost and ice skin on puddles. Nothing in my traps. Arita had 9 little abodons, 2 Melanomys, and one long-tailed Meriozomys erumpin. The melanomys both in the forest. Temp. noon 56°, sunny.

after lunch went down the road about a mile to a place nearer good forest. Put out about 35 traps in sphagnum - cycads along forest border. No runways or signs. Cloud bank still over jungle at 7 p.m. Went jacklighting along the road. Saw 2 pr. of green eyes possibly deer, both together, one bigger than other. Possibly of huemul and young.

May 5 Nothing in my traps. More abodons in Arita's. Hunted for pandas and yaks and took movies of some cloud forest. Quite a few tropical birds ~~feeding~~ feeding in the patches of cloud forest - bright colors and all, even a woodpecker, I think. The highest forest looks really broad-leaved trees but plenty of bearded lichens, moss, ferns, bamboo, and sphagnum. Just below my traps, at about 11,500 ft., a really broad-leaved tree is common.

5:45 a.m. - 35°	11:30 - 55° 41%	4:40 - 54° - 31%
6:30 38	12:30 - 55 41	6:30 - 41 - 53
7:00 42 - 47%	2:00 - 57 41	9:45 a.m. 50° - 60%
8:20 46 - 45%	3:20 - 57 38	11:15 54 - 56

Frost + skin of ice in a.m., day all sunny, jungle still blanketed by clouds

May 6 Jacklighted down to my traps after dark and slept down there. Cloud bank lower in morning, interesting sunrise, but still



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not much mountains visible, Took pictures in cloud forest, then hiked up to Bus. One long-tailed mouse and a spine-tail in my traps. Left about 11 a.m. for Puncartambo but decided to camp & set traps when we got down to 10,400'.

Numerous fires visible around the hills (one seen & set by a boy with corn) indicate that burning plays a roll in the plant succession around 12,000 ft.

On the way down noticed: black & white noisy plovers in the grassland near the Tree Cueva turnoff at 11,500 ft.; shot a guan in brush & small trees at 11,200 ft.; quinoa 10,750 ft.; eucalyptus 10,600 ft. On this side of the Tree Cueva divide there is practically no cloud forest! Whereas on the other side the beech-moss-sphagnum-cycad type forest is common and appears to run on down into broad-leaf forest, on this side the upper forest is a drier, scrubby kind (but hard to say how much is due to cutting). One of the commonest trees looks just like an alder, and down where we are now one of the commonest shrubs looks like *Pyrocantha*. Our camp <sup>10,400 ft.</sup> is along a noisy cold clear stream, site of an extinct saw-mill. Aspect here is quite tropical despite frosty nights. Birds seen here are hummers, grackles, a white-headed black "dipper" along stream, ovenbird, and *Zonotrichia*! (feeding young). Very little cultivation and very few people along the way down from Tree Cueva, although more cultivation on the other side of the valley of the Rio Puncartambo. Surprisingly little grazing at Tree Cueva considering how lush the grass looks. Anita & I both put out traps here mostly in brushy





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jungle. Jacklighting from 8 to 9:30 (moon almost full) saw one small mouse and, on a grassy slope, a ♀ deer. Shot it, an Odocoileus, not hemionus. Also saw a bat while jacklighting. The local Indians say only one kind of deer here.

May 7 Day clear but sun gets into this canyon late and leaves at 2 p.m. Used to be a summit where we are camped.

Traffic fair. 6:15 - 34° frost 11:00 - 59° - 46% 5:15 - 50° - 68%  
 7:30 - 37° 1:35 - 62 - 37 9:00 - 40° - 74%  
 8:30 - 45 - 88% 2:30 - 60 - 41 6:00 a.m. 33 - 89  
 10 - 54 - 56 4:10 - 54 - 64 7:45 - 40 - 90

Skinned deer etc. Koped arrived in p.m. Fairly good flight of bats at dusk. Carl got a small Myotis ingens?

May 8 Fairly good trap catch. Left about 8 for Cuzco etc. Road goes down to Puncutambo at 9600', then up to the Puncutambo-Huambuto pass 12,850 ft. Quinoa as low as 9600' at "

The big bean plants from Puncutambo up to 11,500. The pass is then at Puncutambo but quite dry, shallow-soiled, rather poor looking. Cholla cactus at 9900 ft. Stopped to take pictures of steep fields on way down to Huambuto. Those photos are not the steepest - just happened to have people digging potatoes. Some girls shopping in Cuzco, then up the hill toward auto to camp.

May 9 All morning winding down into the Apurimac Canyon. Becomes quite tropical - if dry before the bottom at 6500 ft. Coming down into this canyon we encountered sugar cane as high as 8000 ft, also Caña brava. Considerable cactus & thorny scrub. Lunched with the goats at the bottom, then up the other side with views of gorgeous snow-capped peaks. at 12,100 were pasture, bushes, Calceolaria, some trees. at 12,800 ft still bushes, pasture, Calceolaria, yellow "daisies", not real



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altiplano. Then down the long zig-zag to Abasco, arriving there about 5 p.m. Pretty good forest in place on this grade at 11,000 ft, and bonanzas with pretty good stalks of fruit in Abasco at 8300 ft. Then down the hill further in the dark to camp at 6250 ft in thorn scrub of pepper trees, century plants, *Opuntia* in big clumps, a small tree with white morning-glory flowers. Some *Heliconia* etc on border, but definitely dry. Put out about 30 traps by moonlight.

May 10 Temp at 6:00 a.m. 60°. There were many traps - 2 kinds of Arizonas I think. Left early to climb up to the altiplano, but the road <sup>climbs</sup> ~~goes~~ very gradually up the canyon of the Rio Pachachaca, mostly thorn pepper trees, *Opuntia*, organ-pipe cactus, <sup>scotch broom</sup>, etc. Count sugar cane. Saw *Crotaphaga* at 6500' in thorn scrub-cactus, and Carl shot one at 7100 ft. Sugar cane as high as 8500 ft. Carl shot a torrent duck at 7100 ft and I one at 11,400 ft. Lunch at 8000 ft. with only a few goats (many at 6250 where we spent the night). At 10,700 ft. in the gorge were many bushes, pepper trees, scotch broom, spanish moss. At 11,300 ft. no more pepper trees but numerous other bushes & small trees, also a few green thorn bushes like those at Buena Vista. Camped at 4:30 at 11,700 ft. where bushes are thinning out, a few *Polylepis*-looking trees, some cactus, but definitely a touch of altiplano due to presence of tota (*Quadrangula* and *Bocconia*?) and *Flourensia*. Put out about 35 traps before dark.

An intelligent (and quiet) boy encountered carrying shotgun in Abasco had been out hunting small parrots in a



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wooded canyon outside (and slightly above) town, the knew 2 kinds of deer, a "Cervus" at high levels and a "Venado" at "intermediate" altitudes. The "Venado" has as many as 6 or 8 branches to the horns.

May 11 Akodon in my traps. After breakfast climbed up onto the altoplano, at 12,300 ft. ichu, tola, and some lowland shrubs. at 13,000 ft. mostly ichu, some tola, lowland shrubs, and ground bromeliads. Saw buzzard at 14,000 and 14,600 ft, vireos 13,700. Above the ichu instead of coming to Festuca orthophylla you come to solid turf, green, made up of the Moehnia grass (closely cropped by alpacas etc) other short grasses, a clump of Pycnophyllum and an insidious little spiny plant. Numerous Diatrichia clumps, but no big yareta beds. What yareta there is softer than regular, shallower.

Camped at 14,650 ft. on a side road among numerous volcanic-rocky slopes turf grasses, sedge. Heavily grazed. A few local areas of tola (a fleshy sage, bigger ~~than~~ and more shrub-like odor than the Purpurea sage). I put traps along bottom of a low cliff. Saw Tyrannus trifasciatus.

May 12 6 Phyllotis pictus in my traps. Other lined pictus, blue Chinchilla and galea. At dawn 3 or 4 groups of Tyrannus were calling. Saw one trifasciatus and shot a ♀ from it with big attractive follicles.

6:00 - 30°	11:00 - 45° - 51%	4:00 - 49° - 37%
7 - 34°	12 - 49 - 49	4:50 - 45° - 39%
8:40 - 40° - 62%	1:30 - 54 - 38	7:30 - 35° - 62
9:35 - 41 - 59	3:15 - 53 - 35	

Picked up my traps and set them at the bottom of Polisado across the valley. Good rocks, smelly sage, and a spring bunch grass something like Festuca orthophylla but different.



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May 13 My traps not touched. No tinamous calling in morning. Drove to 35 km. ENE Piquito, 14,600 ft. Much of the drive across a boulder strewn pampa growing mostly to *Notthura* bunchgrass, little grazed, but some stunted tota *rigidum*, *Lyserophyllum*, etc. Scattered shallow ponds. Many vicuñas. In some places viscachas living among boulders on the flat pampa. Camped on rolling pampa - *Notthura* grass, 2-inch bunch grass, *Lyserophyllum*, a little tota *rigidum* and *Pinus* sage. Set 35 traps in rocky talus.

5:45 a.m. - 24° - 68% 10:10 - 45° - 50%  
8:15 - 35 - 69 10:40 - 48 - 48

May

May 14 Temp. 5:45 a.m. 26°. In my traps 1 *Chrooceryx*, 1 *Ph. darwini*, 1 *Ph. pictus*. No tinamou calling although some called last evening. ~~Drove to~~ 10:30 a.m. 46°. Drove across vicuña pampa & lakes. Mounds of brattatas & coats. Camped on a saddle at 13,500 ft 15 km. NE Piquito. Passed considerable lupine in bloom at 13,500 ft. at 13,700 ft. considerable fleshy *Senecio* and tota quadrangularis in bloom <sup>and ichu</sup>. Put traps around a corral with much blooming fleshy *Senecio*, and a few traps along road walk near fleshy *Senecio*. Many *Mothoprocne* near camp in lush ichu and quadrangularis. Some ichu clumps almost breast high.

While returning a bank from a deep sunless canyon found considerable ice at the bottom of it - at 5:30 p.m.

May 15 Temp at 6:00 a.m. 35°, some frost & ice. My traps with ~~numbers~~ 7 *Phyllotis pictus* and <sup>5</sup> ~~some~~ *abodon bolivi*, <sup>an *anthinus*</sup> 2 *Phyllotis darwini*, and one *zebrinus* of the no-white-red-wood variety.

Drove down to Piquito past irrigated grain fields,





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and brush weedy + grassy stretches along the road and between fields. Much lupine, small composite bushes. Camped beyond Leguio on the grade up to the altiplano again, 11,500 ft. A bushy terrain with numerous large cacti, bristly green thornbush, asters and other bushes. Some grassy slopes. Put out about 30 traps along a stone wall through this stuff, some clumps of bushes 10 feet tall, cardelino joint cacti 10 feet also.

May 16 Temp. 5:45 a.m. 45°, but some frost in places. My traps with about 5 Abodon boliviensis, 2 Phyllotis, several Peromyscus empty, 3 of the mice eaten.

Drove to Mazca. The road climbs back onto grassy altiplano with vicuñas etc at about 13,500 ft, then drops down to Mazca (2500 ±). Saw vicuñas in grass as low as 12,400 ft. Polyphasic between 13 + 12,000, maybe a little lower. Not too sprinkling of grass down to about 10,000 ft. where the big & tree coctus starts, then gradually diminishing vegetation as you get lower. Some vegetation all the way down to the Mazca Valley, no completely bare stretches as on the Tacon road. Noteworthy were "frosts" of a small bare tree (milky sap, clusters of seed/pods at ends of branches, no leaves). Cotton in bloom and ripening in the Valley. Stoppered for lunch and skinned by a blooming cotton fields. Then traded goods with Hofords and parted. Camped on desert a few miles north of Mazca.



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May 17 5 miles N. Mazca, 2500 ft. Temp. 6 a.m. 57°. Anita awakes in middle of night to see a house mouse running around the head of our bed. Caught it. This is very barren stony desert (see movie) although a few dry sprigs of an annual were found in a nearby gully. The vegetation of the Mazca valley was about 3 miles away and about  $\frac{1}{2}$  mile in other direction was a dry wash with ephedra-like bushes. Also seen at our campsite were small moths (discovered by turning over stones), spiders (also under stones), a large green beetle (under sleeping bag, possibly a stone-away), and a small hummingbird came at 7 a.m. to investigate the red stripping on the bus. Heard bats during the night.

Stopped to wash at a stream about 25 km NW Mazca, 1700 ft. (bears, thorns, compound leaves) Numerous willows, acacia-like trees, bushes, a small delicate cana bear. A frog and very large frog squashed on bridge.

Stopped for night in sandy desert about 10 mi. N. Canete. Sandy hills with scattered rocks. Only vegetation is lichens on the larger rocks and Browallia, some in bloom. They are quite rootless, probably depend on fog. Numerous mouse tracks, foot?, and lizard tracks. Many moths came to lantern after dark. Several cornucopia skeletons lying about. Put out about 20 m.s.

May 18. Clammy sea-shore feel in the morning. One Phyllotis in my traps. Took movie of the rootless browallia

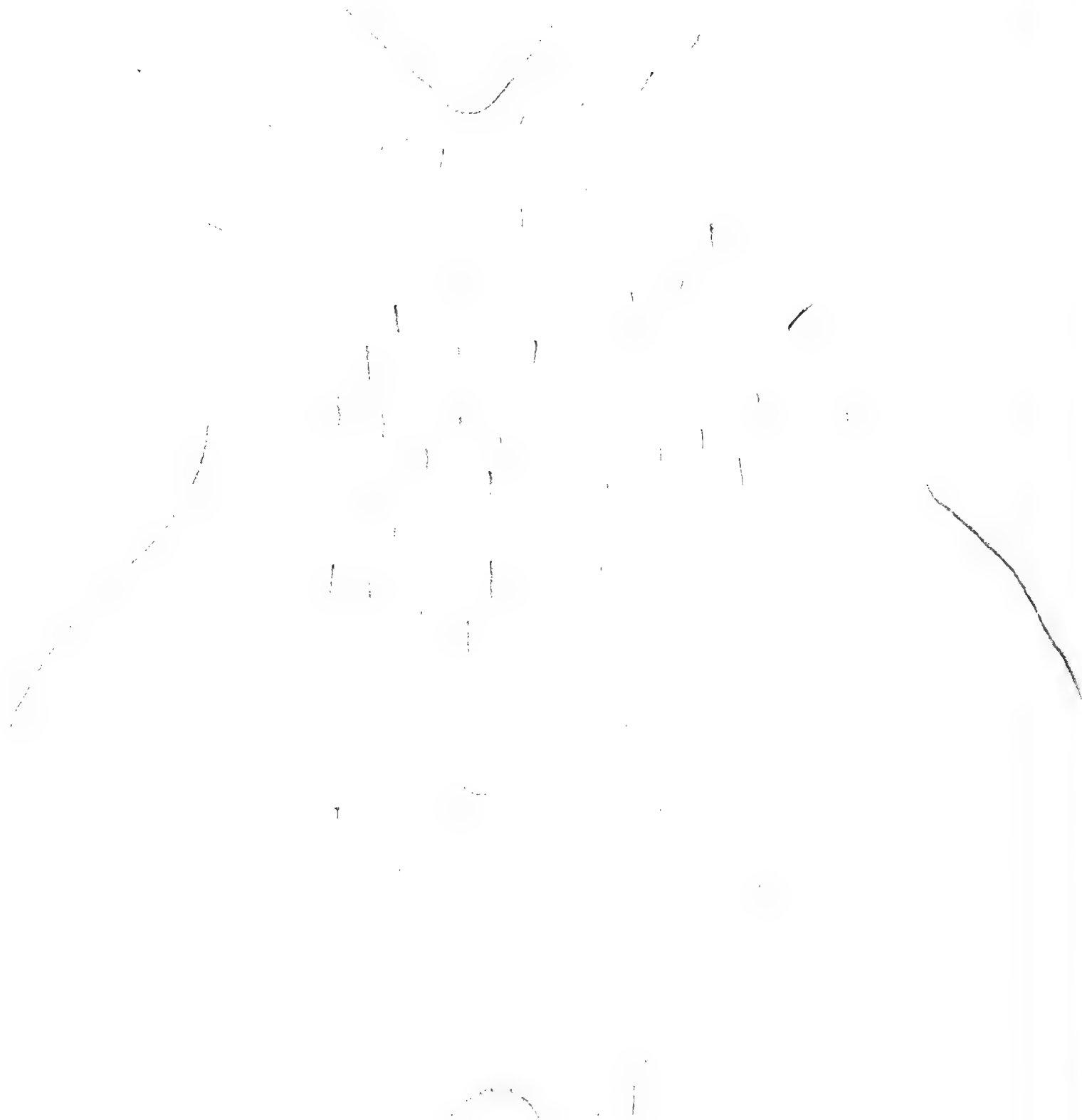
Ch. ... ..

Scale 1:1

# CPP 2699

off nest #7

with ... ..  
habitat



SPECIES ACCOUNTS  
BIRDS



951-1952

## Rhea

Dec 10 Everyone so far agrees that rearing is over and that young chicks are abroad. Sr. Bulger says they go into the hills to nest, that they lay up to 18 eggs, and that one egg is used as food by the hatching young. He says they are much hunted for plumes and the eggs are sought & sold for food.

Jan. 8 Pampa Visincha. Mature sons rheas come down from hills to feed on pampa at 3 or 4 a.m. Eat little globular ~~seed~~ fruits of Distichia. Nests in Sept.

April 15 Shot 2 of a band of 6 feeding almost among alpacas on the Pampa de Capazo. The rheas were doing some <sup>bickering?</sup> among themselves. One (duller colored) a ♂ with testes about 30 x 8 mm, probably not breeding. Roundworms & tapeworms. Stomach with coarse grass, "bulbs", small plants etc. Feces huge with coarse vegetable matter.

April 20 Pampa de Huentre, 14,500'. While stopped for lunch aunts spied a herd of 13 out on the pampa near alpacas. an hour or so later we took off after them in Bns and approached to less than 100 yds. Closer than this and they would run, some of them zigzagging with conspicuous dropping of the wings, showing the plumes. Took movies & stills. Tracks in sand while walking were 16" apart. While running 48" mostly, some 56, and one 60."





1951-1952

Mothrocta~~Perdix~~

- Dec 19 Shot <sup>1</sup> today at Km 57 west of Puro, 13,300 ft. Ichn grass hills. There were a pair of adults and 3 or 4 <sup>these probably mothrocta</sup> [more half-grown young]. These I think are the middle-sized althlax tinamou, smaller than Tinamotis but large. The ♀ was sprouting new feathers over much of her body and had many ova up to 4 mm. No brood patch, but saved skin.
- Dec 23 Shot 2 at Km 101 east of Arquipa at 13,700 ft. They were the only 2 seen. This is very close to the spot where we bought a Tinamotis from a boy a few days ago. He probably got him a little higher. Hard wet snow at time.
- Dec 29 Ants flushed one, probably this species, on the hill east of Teneopalca, 13,900 ft, mostly tola (quadrangularis) with mixture of bunch grass.
- Jan 6. Several were feeding in the new barley field below the Haverda.
- Jan. 7 Shot one of these, a ♀; no brood patch but one orange follicle 8 mm in diam, next 4 mm, and possibly a CL. Oviduct large. Barley & some other seed pod in stomach.
- Feb. 3 Saw 2 pairs and a single within 1 ~~km~~ mile about 15 km south of Moyocruz, 13,200 ft. They were on or near the ~~bottom~~ of river flats but near the hills. This is Festuca country, hence the species rises above ichu. The single was a ♂, both ♀♀ were laying.
- Feb. 4 See specimen
- Feb. 6 Flushed one at Ontano. It flew up rather steep hillside for about 40 yds, then landed.
- Feb. 10 Saw band of 5 at Km. 104 from Puro, 14,300 ft. 4 seemed smaller than 1 other. Ants shot 2 small ones - see directions.



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## Mothoprocta (cont.)

Feb 17 3 mi. W. Vilque, 13,300 ft. Watched a pair feeding from 8 to 10:30 on the wet high valley floor near camp. During this time they travelled north about 150 to 200 yds and back again 50 or 75 yds before I lost them due to mudrains/passing while I hid by bromeliads on some nearby mothura. The Mothoprocta seemed quite placid & undisturbed, looking much like a pair of guinea-fowl grazing.  $\pm$  or  $2\frac{1}{2}$  hrs they fed almost continuously. The smaller one, without crest, led the way and was followed by the larger one with crest, usually 3 to 10 feet apart. ~~The~~ Occasionally the larger approached almost to contact whereupon the smaller would run a few yards away. They fed most on bright green patches. A pair of caracaras stalked them they pass near them for part of the time, and once at a distance of about 20 yards the tinamous ran from them. There was also present a pair of what I took to be young caracaras. H-vultures & b + w planes not far away. The  $2\frac{1}{2}$  hrs was almost all feeding casually, no apparent direction, and a few short periods of preening & feather-fluffing in the sun.

Feb. 21 In summary of our stay at 3 km. W. of Vilque. When flushed the  $\sigma$  &  $\eta$  give a series of whistle-squeals similar to those of ring-necked pheasant but more piercing, higher pitched. They also have a call note (assembly or mate-calling, I think) that is a single chirp reminiscent of the first chirp of the robin alarm call. This note is given every few seconds, 2 or 3 times a minute, or only once.

On Feb. 20 in morning flushed & shot a  $\sigma$  off a nest of 6 brick-colored shiny eggs under a large ichu clump at the edge of the valley floor. ~~the~~ Nest more finished than that of Mothura, grass matted circularly, a dozen or so feathers sprinkled around. Nest not visible



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*mothoprocta* (cont.)

from above. ~~The flushed on the~~ *mothoprocta* also about 50 yards away at the same time. Remained (and watched) nest for rest of day and at 8:30 p.m., but no other birds seen nearby. About 10 a.m. a lone bird was feeding & preening about 40 yds. away. Wounded it but it escaped. Then looked for nest and found that indrain had removed eggs as well as our stone marker!!

Feb. 23 Hunting with Kofords to Arequipa-Puno km. 100. Collected one ♂ and ♀ (egg in oviduct) among *Festuca* and some ichu (13,800 ft.) and heard *Tyrannos* about 100 ft. ~~up~~ higher on a facing hill that was rockier.

Feb. 25 82 km. W. Puno, 14,000 ft. Heard the robin-like chirp near bus at  $\frac{7}{8}$  a.m. and saw pair of perdis across stream from bus feeding on the wet green flat. Watched for hour or more. As before one of the pair was slightly larger, more of crest on head, greyer less brown, and seemed to follow the other one around. Will call this large one the ♂. While watching the ♂ of this pair he started to run and I saw that he was chasing another tinamou. After about 10-15 yards of very rapid pursuit during which our ♂ was only a foot or two behind the other bird took off with screeches and flew away. Our ♂ rejoined the ♀. Later we noticed that there were 2 ♀♀ present, as well as the ♂, all within recognizing distance of each other, but no fights. The ♂ soon wandered uphill 100 yards and sat and preened for 15 minutes or more. The other 2 birds then wandered up the hill for about 200 yards, then also stopped & preened.

About 3:30 in afternoon a pair were again on the flats near the bus - mostly walking in the grass, ~~and~~ not much



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Nothoprocta (cont.)

feeding. The ♀ taking lead, the ♂ following a few feet or yards behind. Occasionally when he came close she would posture by presenting her posterior, raising it, and fluffing out the rump feathers. This gave a bright buff display with 2 conspicuous black patches on either side of the anus. The effect was to frighten the ♂ away a few feet. After a time this pair wandered up the hill 50 yds and stood around. They then returned rather quickly to the flat and shortly after 2 tinamous made short, screechless flights across the river onto the flat. After standing still for about a minute these started through the grass toward the original pair. Just back of them until suddenly 2 tinamous were chasing back & forth thru the grass, totalling about 25 yds before one took off screeching and landed about 25 yds away. This one and one other then disappeared (most likely the trans-river pair) leaving 2 on the flats. These continued to feed etc. On one occasion when they were about 4 feet apart, the ♀? ran to the ♂ as though squalled, and he squatted, and she stood out of him. He squatted quietly for about 1 minute with her, <sup>standing more peacefully</sup> on top of him; she repeatedly jerked her wing tips. After hopping off they fed some more and then walked rather rapidly 200<sup>+</sup> yds uphill where they disappeared together at 5 p.m.

At 5:30 a ♂ on a flat down stream was giving the flicker or robin call persistently. He stood still about 10 minutes (except for rotating) giving a chirp about each 10 seconds. Neck flexed back & down at each chirp. Occasional other chirps from uphill didn't bother him. After about 10





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## Mothopuncta (cont)

minutes he walked off rather determinedly (I thought perhaps he had seen me) and disappeared in a tall grass patch about 40 yards away. A half-minute later a perdis flew out of this patch, landed 20 yards away, walked rapidly uphill & out of sight. Perhaps 10 seconds after this one flew, a second flew out of the patch and landed not far from where the original bird had been chipping. Perhaps a ♂ chasing off another ♂?

Feb. 26 Watched a pair from 8 to 9 a.m. at east end of our valley. They spent all of this time feeding on  $\frac{1}{2}$  acre patch of "Mothurn grass" up on the north slope. Again one was bigger than other. The "♂" stood up on a rock occasionally. Mostly follow-feeding activity, but on one occasion one ran 3 ft. ahead & squatted, the other followed immediately and stepped on top of the first. This top one stood, facing in same direction as lower, for about 1 minute, twitching his wings much of this time. The bottom one stared occasionally, which necessitated "treading" motions by the one on top. When dismounted they stood facing each other for 2 or 3 minutes, then one started to preen? and finally back to follow-feeding. Disappeared together in tala.

About 2:30 spatulated <sup>(♂+♀)</sup> 2 on flat near bar. A third, ~~♂~~ a "♂", then appeared near the stream & bar and fed over toward the pair, which were follow-feeding. They seemed to avoid each other for a time although only 5 yds apart at times. Eventually a chase developed, and one ♂ ended up near the foot of the hill, making his way upward where he finally disappeared about 20 yds up. A pair (the pair?) then made their way up the hill together, but not as far. They had just



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## Mothoprocta (cont.)

gotten well up the hill when a "♀" appeared near the base of the hill and, while calling, rode her way out into the area from which the others had just left.

Perhaps in response to her calling, a "♂" appeared ~~from~~ ~~uphill~~, possibly the one that had just left with another "♀", and the calling then ceased. She ~~flew~~ ~~back~~ ~~down~~ ~~calling~~. Another "♂" then was discovered ~~out on the~~

~~flat~~ out on the flat and joined her, whereupon the calling stopped. Also, a "♂" came down the hill to the edge of the flat, possibly the same one that had just gone up with another "♀". When the couple moved out across the flat he did not follow, but went back up the hill. The couple on the flats were feed-following intently, the "♂" following closely. The "♀" postured several times by raising rump toward "♂" and spreading rump feathers. This either frightened him or caused no response. Eventually, without apparent preliminaries, the "♂" squatted and the brownier, less crested, leading "♀" stood on top of him, facing same direction, neck stretched upward. Thus for about 1 minute. Upon dismounting I think the "♀" went over his head and postured in front of him, but visibility was not good.

They then separated by about 5 yards, preened, fed, and generally ignored each other, but did not separate.

Concerning the call, have heard it at most times of daylight except maybe noon, never by pairs, only by singles. Shot a ♂ giving it at Vilque and saw what we are calling a ♀ give it today.

Flares grazed right through a pair today and were




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## Mothopreter (cont.)

almost ignored. On one occasion when a blower walked rapidly directly at one of a courting pair, the bird took off (without screeches), flew about 10 ft up in the air and landed 10 yds away. Obviously not greatly alarmed.

The shepherd that we had approached this morning came back at 4 pm and said he had found a nest with eggs, but no mother seen. Went with him and saw nest under robust, spreading grass clump of the coarse green species. About half-way up a hill along a runlet. 6 eggs which felt warm. Nest rather substantial, many feathers, sheltered from above by the grass.  Went back at 5 but no bird seen.

Feb 27 Bird on nest at 6 a.m.

at 8 a.m. heard calling at 1 km. above camp. Although calling was close to us, could not locate it. at first every 9 seconds then slowly increased to every 6 seconds. Did locate, however, a pair coming down the hill rather rapidly toward the sound on the flat, "♂" in front, "♀" about 5-10 yds behind. "♂" was making a quiet chirp every few seconds. Calling stopped when they reached the flat and the "♂" returned to the "♀". Some pursuit, a few instances of posturing by ♀. Twice they were lost to view, once for a couple of seconds behind a grass clump during which there was a brief flurry of activity of some sort. Shortly after, they had lost interest in courtship and for no apparent reason "froze" for about 5 yds apart for 15 minutes. Then flew them.

In the afternoon 2 ♂♂ came down to the flat by the bus at different times, fed for a half-hour, then went back up the hill. One of them called most of the time and joined another up the hill.



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*Nothoprocta* (cont.)

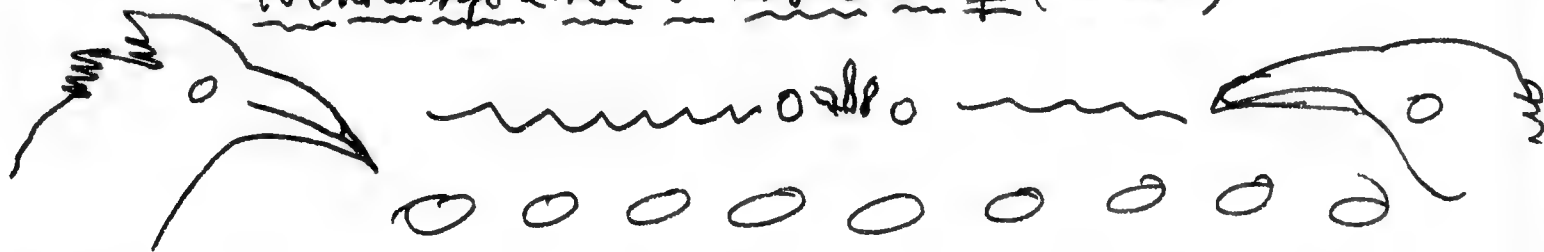
Feb. 28. Bird was not on nest at 7 a.m. (ants had seen it bare at 5 p.m. last night and had not seen it return by dark 6:30) but eggs were completely covered with feathers and felt slightly warm. Watched 'till 7:45, no bird, but was on nest at noon.

Up road again to same place as yesterday. Watched one bird feed and call for about 100 yds along the flat, perhaps 15 minutes. Two other birds called further away but none showed up. Possibly those up on the hill could see me whereas those on the flat didn't.

Calling is much louder when bird faces you. Also, the neck motion has a sharp recoil, it's almost a flick. Have now heard calling even at noon, hence all daylight hours.

About 3 p.m. watched a pair feeding along a sequia and on flats just this side of km. 132. Saw no courting antics; in fact, "♂" was calling much of the time, but nevertheless followed ♀. She followed him when he was in lead.

For notes before here "♂" should be ♀ (see below)



Feb. 29  
~~March 1~~

Went up the road to km. 132 at 7. Heard calling but couldn't locate. Went back at 9, heard calling, and found a pair coming diagonally down hill to flats - same route as the pair yesterday afternoon, probably same pair. Big crested ♀ was in the lead, calling occasionally. Watched for 3 or 4 minutes and saw no posturing by either ♂ or ♀. Then, when the ♀ was about





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## Nothoprocta (cont.)

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10 feet ahead of the male and quite possibly out of sight the ♂ ran up as though sent for and stood on her back. I did not see at what point she squatted and could hear no noise (but I was 100 yds away and across noisy stream). While he was on top of her, ~~I started~~ crawled about 20 yds closer and shot top bird with .22. He scooted ahead about 10 feet and crouched, looking possibly wounded. The ~~female~~ <sup>female</sup> stood up, ~~looked~~ looked around, then walked a few yards into the grass. Decided to make sure of the ♂, so shot him again, followed by fluttering + thrashing and collapse. About 2 minutes later heard calling nearby. Soon discovered the ♀ standing on a rock about 5 yds from the dying ♂. She was making head motions + soft calls, but not loud calls. After about 2 minutes of this I shot at her and missed. She was not greatly alarmed, but started shuffling bill. Two more shots and broke her wing, upon which she scooted up 10 yds or so and hid. When I flushed her she did somersaults in the air. She had large egg in oviduct ready to lay (shell not hard, no pigment) and at least 2 collapsed follicles. Male had penis partly protruding through cloaca.

To summarize and help straighten out sep differently: ♀ seems to be bigger, raise crest more than ♂, usually has rich brown. She takes the lead in feeding, does most of the robin-chip calling, defends the territory, if there is one, and chases away other females, but tolerate more than one ♂ near her. The ♂ follows along as the ♀ feeds, postures occasionally by presenting his rump and fluffing its downy feathers, but we have not seen this have any mollifying effect on the ♀. In fact sometimes it seems to frighten her.



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Moltprints (cont.)

Occasionally she squats and allows him to stand on top of her for a minute or more, but we have not seen this lead to copulation yet. At Veljevo a ♂ was shot while calling in the late afternoon.

Checked nest 1 at noon. No bird on. Eggs not warm, not cold. Shade temp. 57°.

see next p.



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## Mithoprocta (cont.)

March 3 Morning mostly cloudy. at 8 saw 1 Titmouse feeding on flats 20 yds above Bus. It climbed hill almost at once for 50 yards, preening occasionally, then stopped 5 yds from where a ♀ was sitting on the ground next to grass clump. She was sitting but preening; soon stood up, preened some more, then walked rather directly down to flats. About when she reached flats calling started, but probably not by her. She pecked a few times but then started up hill. 50 yds up she started to run down and sideways rapidly because another ♀ had come from above to chase her. The first ♀, I think, then took off with squealing and flew toward bus. The second ♀ soon started calling (again?) and was joined by a ♂? - possibly the same ♂ as had been associating with the 1st ♀. The pair then fed further up hill.

Anta watched nest from 9-11 and took over at 11. Bird left nest at 11:15 and fed at least 200 yds side-and-up hill. No calling. Had not seen it return by 1:20 when Anta again took over. Koperd came at 3:30 and we checked nest then and found bird on it although neither Anta nor I had seen it return. It was off nest at 5, eggs not covered. Temp. at (leaving) when bird was probably off nest 56°.

March 4 at 11:30 went up to nest - nobody home, eggs covered with feathers - and rigged up mirror 8 feet from nest to be able to see in from our blind. At 12:40, after some calling, bird came back. It approached to within a few inches of nest, but was obviously worried, pumped head up and down, walked around, returned, etc, but did not get onto nest. After approaching the nest 6 times, it retired up the



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ridge and we left blind. I returned at 2:30 to find it 2 feet from the nest, still pumping head up and down and calling. After about 5 minutes it retired under a grass clump about 25 yards away. Then I removed the mirror.

at 4 p.m., amid heavy rain-snow, a sparrow fed for about 30 min on the flat <sup>(calling continuously)</sup>. When she finally started up the hill, she was chased by another and finally flew screaming east. The chaser then ran in some direction for about 50 yds instead of returning up-hill to where he launched his attack. Then he started walking back slowly until I lost him. Snow patches accumulated on the back of the feeding one.

March 5 Lay-snow on grass in a.m. Went up to nest at 6:15, bird was on. Watched till 7:15 but it didn't leave. Another was calling within 50 yards, and bird on nest called a few times. Bird also was on nest at 11:30. Another bird on slope across from camp called all afternoon until dusk.

March 6 Bird ~~was~~ <sup>went</sup> off nest at 11:40 a.m., returned at 12:20. Was off at 3:40, had not returned by 4:30. Saw a chase that we think was between 2 males. Also a chase involving 3 birds on the east side of the road on the prairie. Looked like a ♀ made a short flight, then chased another bird until it flew.

March 7. Bird was on nest at 7 a.m. Squirted it with blue dye from syringe while it was on nest. It didn't flush. Was off nest at 8:30, came back at 9:30. Went off at 10:50, back at 12:15. Hail in mid afternoon. Then left at 5:00, back at 6:00, another bird was piping ~~at~~





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*notoprotas (cont)*

Before the parent left, while it was gone, and after it returned. The piping was within 50 yards of the nest. Before the parent left the nest it pushed feathers over the eggs with its bill. Yesterday the eggs were arranged in saucer shape. The evening feeding lasted 1 hour. at the end of this time the weather was rainy, temp - 39°.

Shot a lone ♀ high up on the hill. She was calling vigorously, a slightly more drawn-out, descending call than usual.

March 8 Up to nest at 6:20 a.m. Bird left at 7:45 but could not see if it were marked one. It walked to top of ridge, then flew with a few squeals down the gully about 150 yds. For return etc. see AKP notes. Began watching again at 3:30 p.m. Bird left at 4:00 p.m. and walked down gully to base of opposite hill about 200 yds from nest. Another bird had been calling for about 5 minutes when this one left nest; the calling soon stopped. Nesting bird shook feathers a few times 50 yds from nest, then stopped to preen for 5 minutes when 200 yds from nest. Then I lost her. Later heard flight squeal in that direction. When she left nest weathered just clouded up, temp. in clump of grass similar to nest 12°. at 5:00 clump and air temp were 8°, windy. Went down to nest at 5:00 to see egg. all eggs covered by feathers except 1, which was partly exposed in center of nest. Picked hole in this one and its temp. was  $22\frac{1}{2}^{\circ}\text{C}$ . Temp. under nest clump 8°. Inside was hatching chicks just getting down - large eyes. I would guess another 5-7 days to go. Parent returned



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## Molothrus (cont.)

at 5:35 and sat directly on nest. Did not seem worried about missing egg. Temp. of air 6°. Thus it had been quite  $\frac{1}{2}$  hr with temps falling from 12° to 6°, no sun, considerable wind.

Went back at 9:30 p.m. (temp. 38°) and squirted red water-color on left shoulder of bird on nest - by flashlight from 6 ft. ~~the~~ Bird was sitting quite flat so that we couldn't see any possible markings on neck or chest. Size of egg: 39 x 55.

March 9. at nest: at 10:30 red bird on nest. at 10:50 was not on, red bird returned at 12:15. Not on at 3:55, returned between 4:45 and 5:00. Cold windy & sprinkly during this time. Watched pair on flats from bus at 3:00. Some display and 1 "mounting." Eventually they retreated before a squadron of sheep, then both were flushed by an indri.

March 9  
JPN Hunted with Carl in morning. Flushed a pair near the hummingbird cane and Carl shot ♀. She had no brood patch, egg in oviduct, 4 or more corpora lutea, weighed 705 g. or 1.5 lbs.

Watching in afternoon saw 1 flush with squeals a few feet in front of sheep. Another pair retreated in front of advancing sheep. Many watched nest and saw red bird fly without squeals down to same feeding area. Easily visible with red side toward you, disappears when other side presented. Evening clear, full moon.

March 10 Watched from blind at waterfall from 7:30 to 10:30. One pair appeared in blue-green patch but split up, the ♀ going down toward flats, the ♂ staying near the blind. After about 20 minutes he started calling the sharp call. Soon after a softer call answered from the blue-green patch where the ♀ had returned. Both then moved off to the left but not together. at 3:25 p.m. - a lone ♂ came out onto blue



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green to feed and fed until 5 alone. For a short time gave soft call (chirp). Then after sundown moved thru sparse grass, over bare rock and disappeared on top of hill, <sup>5:15</sup> heard calling from there shortly thereafter. Then much calling from below blue-green plus a squabble in which one bird gave a series of softer squeals than the flight squeals without actually taking off.

Much calling from this region until 5:45 and probably later. After sundown & before dark is certainly a time of much calling and frequent squabbles.

March 11 Heard *Timonius* on hilltop behind bar. They certainly meet *Myiophobus* here (14,200ft). Hunted in morning and shot 1 of a pair below camp. Watched near waterfall with ♀ dummy in afternoon, but saw none. Rained out.

March 12 Watched with ♀ dummy at waterfall in a.m. One pair showed up, the ♀ calling loudly. Fed closely, then ♂ ran off rapidly about 20 yds and perched while she called. She was within easy sight of the dummy but paid no attention (unless calling was elicited by dummy). Then she wandered off downhill and he looked towards where they came from. Shot him.

Went up to nest at 3:55 p.m., sunny. ~~the~~ Red bird was on nest, facing uphill. Not seen ♂ dummy uphill from nest but not visible from nest. Bird left nest at 4:35, no calling at that time; quite red - appears still. He walked across ridge about 50 yds, then stopped to preen, calling occasionally. A ♀ came hurrying up out of gulch beyond, ~~but~~ but passed him in general



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## Mothysperda (cont.)

direction of drumming. Possibly as a result of his continued calling she doubled back toward him, then again toward drumming, then finally back to red bird and joined him. He ~~was~~ still preening and paid little attention to her as she busied around him, usually a few feet away. She frequently squatted for 5 or 10 ~~seconds~~ seconds within a few feet of him, usually facing him. The squathing frequently comprised a run of several feet. He usually ignored her, although once he postured by fluffing his feathers. After 2 to 5 minutes of this foraging by the ♀, he started feeding up the ridge. She followed closely, squathing ~~thickly~~ frequently and clamoring for attention. After a few minutes a transient approached them from uphill. The ♀ soon spotted it and gave chase. The uphill one finally flew (with squeals) and landed 20 or 30 yds away, whereupon the ♀ returned to the red ♂. The ♂ almost immediately postured, first head towards her, then tail; she squatted, and he climbed on as we have seen on other occasions. Because of his red point it was easy to keep them straight. He stood erect, facing same direction as she, occasionally "treading", which may have been an much attempt to keep his balance when she moved. ~~After about 1 min.~~ During this time there was no possible cloacal contact. After about 1 minute, there was a shuffling during which his rump was bent down over her and there may have been cloacal contact lasting about 1 second. He returned to preening and feeding while she resumed squathing for





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## Moth-eaten (cont)

a short time - until she spied the uphill trawner again, which was watching them from out of a rock about 15 yds away. She chased it away and returned. During subsequent feeding of several minutes the female frequently ran from the male, who threatened her when she got too close. Then both trawners for some reason (perhaps he chasing her away?) ran or chased up hill for at least 20 yds and were lost to view for a few minutes. One, however, soon started calling from on top of a rock. Started with the mellow, intimate call, then gradually changed to the sharp call. ~~I~~ I think this was the red ♂, but it may have been the uphill bird. It was soon answered repeatedly by the ♀, who was downhill some 30 or 40 yds. After several minutes of calling the rock bird jumped down into the grass & took out of sight, calling only occasionally. After 5 minutes the red ♂ squeaked and flew from uphill to a point about 30 yds above the nest. He may have flown voluntarily or been pursued by the uphill bird. The ♀ was still calling about 40 yds beyond the nest. He walked to the nest in about 20 minutes, shook a few feathers, sat down, called once, then was quiet (5:40). The ♀ continued to call and move about as though looking for someone. At one time she passed 15 yds from the ♂ chimney but paid no attention. When a bird (the bird?) uphill started calling she moved quickly up towards it, finally saw it, and



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# *Notophaga (cont.)*

game chase. It dodged her by dodging, and she ended up uphill from it, still calling. Twice it started calling again, and both times she moved rapidly toward the sound but didn't locate the bird. She seemed determined to have the last call.

at 6:00, it was almost dark and she stopped calling.

Conclusions: (1) The ♂ has done all the incubating for the past several days. (2) Both ♂ and ♀ call. (3) The incubating ♂ may meet and copulate with ♀ - and late incubation period. (4) During such trysts the ♀ chases intruders. (5) Close contact is probably made briefly at the end of "trading".

March 14 Put 2 dummies on flat in a.m. and waited in photo blind, but nothing came northward.

Went up to nest at 3:40 p.m. Red bird on. Much calling by at least 3 other birds, mostly down-hill. After some time one bird passed up the ridge beyond nest about 25 yds from nest. A few minutes later a ♀ came up the same route, calling steadily in a slightly deeper voice, most of the calls being slightly 2-parted (kee-haw). This bird stopped on top of the ridge opposite the nest (20 yds away), did considerable calling, pecked around as though she belonged there. When chirping started uphill (probably by the bird that had just passed up) this ♀ started up after it ~~and this~~ piping as she went. The uphill piping stopped, however, before she got there, but just about then piping started from the next ridge beyond the nest ridge (60 yards from the ♀ starting point, 90 yds from nest). The ♀ turned and started toward it with determination. She located



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## Mothopetia (cont.)

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this bird after a few minutes, chased it until it flew squealing downhill. ~~the~~ while it was flying she ran after it for 15 or 20 yds (have seen others do this also). Then she walked slowly down its ridge, still calling loudly, perhaps 80 or 90 yds from nest. at 4:45 the red ♂ left the nest stealthily and made his way across and downhill along his usual route (but also in this case toward the calling ♀). In 5 to 10 minutes, after he had disappeared fully in crossing a gully, he joined the ♀, who no longer called. Intense courtship followed: when she approached him, he would fluff his feathers and stand his ground either facing her or back toward her. She would respond by darting a few feet or yards away. Then he would stop posturing and feed away, whereupon she would follow and approach, he would posture etc. Her darts were conspicuous. During one prolonged posturing I heard twittering + squealings, as though it had the other day also. ~~twitter~~ Both pursued for about 1 minute + after a few minutes both disappeared in tall grass behind rocks and I saw him no more. after about 5 minutes, however, a bird (presumably the ♀) emerged from the grass and walked fairly rapidly without calling toward the nest ridge. Just her in gully but a few minutes later the deep-voiced bird (probably same one) appeared on the ridge opposite (above) the nest, calling occasionally. Shortly after, calling came from down + across (where she had come



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*Melospiza (cont.)*

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from). She hurried toward it calling, but the other bird saw her coming, shut up, and ducked out of her way. She searched for it but didn't find it, then returned to the nest ridge (her frequent return to this spot make it seem like the center of her "territory"). Shortly thereafter the bird uphill started calling, and she, also calling, started up toward it. Lost her in the gloom. Red ♂ returned to nest at 6:00 p.m., no sound. At 6:05 a.s. dark settled both birds <sup>uphill</sup> were calling steadily and vigorously, the uphill bird calling first, the ♀  $\frac{1}{2}$  second later. They were about <sup>50</sup> 60 yds up the ridge from the nest.

In 2 hours this female made 4 sorties against calling birds, one of them at least 60 yds from home base, and while out on one sortie met the nest ♂ and probably copulated with him. At least 2 different birds were sorted against, sex unknown, doubt. During the courting today and day-before yesterday, the nest was not greatly in evidence.

March 15 TO nest at 10:30 a.m. to relieve Anita. Some calling etc. downhill from nest when I first arrived. Red ♂ returned at 11:15. Things for next half hour very quiet, sunny, then left. Morning had been mostly overcast, afternoon rained from 2-4, then cloudy-sprinkly.

Went back at 4:30 p.m. to relieve Anita. Red ♂ on nest, local ♀ downhill, calling, another bird uphill, calling, focal ♀ wandered up nest ridge and stopped above nest, calling & preening. Did not seem interested in going after the bird calling about 50 yds farther up the ridge.





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*Melospiza (cont.)*

at 4:50 the red ♂ left the nest looking wet and bedraggled and with a feather stuck to his bill - which he removed with foot after several attempts to rip it off on the ground. Local ♀ was calling from ridge top about 25 yds from nest. The red ♂, however, aimed slightly downhill diagonally, walked 20 yards or so, then stopped to preen for about 3 or 4 minutes. Local ♀ did not see her although only 15 yds away. The red ♂ did not seem disturbed by the calling ♀, but definitely did not head toward her. After preening, the ♂ continued diagonally downhill, and then was seen by the ♀, who started after her. When they met, the ♂ fluffed + postured and the ♀ darted away about 5 yds. One or both gave twittery - squeaky sounds that I could hear 70 or 80 yds away. After her dart, the ♀ returned, but the ♂ ran off, imitating a chase that lasted 40 or 50 yds downhill. Not a pell-mell head-down chase like the territory disputes, but more of it at a fast run with meanders + sharp turns. The ♂ finally gave her (and me) the slip. When she realized this, she started calling again (and still hunting). For the next half hour she called and preened near where the ♂ eluded her, which was perhaps 70 yds from the nest. At 5:35 she seemed to see or hear something uphill, and started at a run after it. Went rapidly about 50 yds up the gully beyond the nest, making use, as on other occasions, of a long ~~run~~ bare rock slide. When she had gone up about 50 yds she looked puzzled, looked



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~~mothflakes~~ (cont)

around for a few minutes, then started running downhill again. I had seen and heard nothing. When she had retreated about 30 yds, the red ♂ took off with squawks and landed on my face of the nest ridge, but 30 yds down from the nest <sup>(a flight of 30 yds)</sup>. He fed along for a minute or two toward the nest, but apparently the ♀ had followed his course afoot for she found him. He ran from her towards the top of the ridge and gave her the slip, whereupon she started calling again. He worked cautiously and slowly up the ridge to a point up the ridge from the nest, then back down to the nest at 5:45. The ♀ calling about <sup>20-30</sup> 20 yds below the nest. I definitely got the impression that he was trying to sneak onto the nest without the ♀ seeing him. The ♀ then moved off beyond the nest ridge, calling.

The rain seemed to have washed off some of our coloring on the red ♂, so went back at 8 p.m. and gave him another squirt of scarlet water-color on the left shoulder.

March 16 Was just arriving at nest 1 at 7:15 when Tom blew: the telegraphists from Trinopolis had arrived <sup>by bicycle</sup> with news of 2 nests. Drove to Trinopolis, then accompanied by ridain over 1 1/2 ridges to the 2 nests. Nest #2 was discovered yesterday and had 7 eggs. When we arrived 9 a.m. ±, the parent was sitting. Nest under a grass clump among grass-tola on open hillside about half-way up. Nest #3 was about 300 yds around hillside in valley between 2 green reefs, under grass & tola. It was discovered day before yesterday in the morning about 8 o'clock at which time a parent flew off when the ridain was 20 yds away and at which



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*Myiophobus (cont.)*

There were 3 eggs. Today at 9:30 there were 4 eggs, 3 measured, 1 covered by feathers. The Indian says that the more feathers, the later the stage of incubation. Also says 1 egg laid every other day. The telegrapher says 24-day incubation.

Returned to nest 1 at 11:00. Very red ♂ had just left nest and made way uninterrupted over farthest ridge, slightly above level of nest (ridge top about 100 yds from nest). at 11:15 a bird down at V of gullies flew squeaking and landed in V but did not spot it after it landed. Looked at nest from 6 feet - eggs all covered, no sign of chicks. Returned at 12:45. No calling either when she left or returned.

Went up again at 3:15, relieved at 4:00 by AKP. No calling or activity during this time. Red ♂ on nest. Afternoon mostly sunny but windy. Very little calling even late in afternoon.

March 17 Walked to Tinapalca to watch nests there. ~~Arrived~~ arrived 10:30 a.m.; still 4 eggs no parent on nest #3. Built a stone blind nearby, finished about 1 p.m.; started watching at 1:45. Practically no calling, heard two fly up the slope east of nests. Went out at 3 to set 2 pit traps for insurance and to check nest #2. Bird was on nest #2. This nest 400 yds from nest #3. Two more flights on slope east of nest, at 3:30 but no calling. Some calling there at 3:45 and later. at 4:30 a ♂? was feeding quietly on the east slope about 50 yds from nest. Another bird was calling at the time. More calling until 6:00. Cold, clear, & windy.

March 18 Visited nest at 5:30 a.m. No bird on it. Heavy frost, and ice on paddles. Put dab of butter & purple dye on 3 of the eggs hoping to mark



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## Mottobroca (Cont)

& when de logs-if. In blind at 5:45. Some calling then and until about 7:15, then quiet. A call heard yesterday & there a m goes: wheee-ar-r-r-r-r-r, the rolled are being throaty and of lower pitch. At 8:40 a pair appeared about 20 yds beyond the rest (just the rd of far green sup). They were follow-feeding closely and quietly, the male sits and in the lead; the female seldom more than 3 lengths away, quite cresty, with considerably more head pumping. She was following considerably closer than others we have watched, but no overt sex behavior. No posturing or chasing by ♂ or ♀. ♀ made 2 short darts, but no agout that I saw. Watched them until 9:20, during which time they were never more than 35 yds from the rest. At 9:20 they disappeared into a gulch only 15 yds beyond the rest, but I didn't see them come out. At 9:40 a tinamon flew from 50-75 yds up the east slope. All quiet at 12:30, so took an hour out for lunch. Then quiet until calling started around 3:30. Saw none, however. Visited nest #2 at 5:00. 7 eggs, warm, feather-covered, 6 in rosette with 1 on top in center, warm. Took the center one. Then back to nest #3 until 5:30 but nothing near it. Day almost all sunny, late afternoon windy.

March 19 Night clear, frost + ice. Two tinamons flew at 5:30 a.m., possibly crows or housebird rider. Into blind at 6. Echeba of crows went across east slope 6:10-6:30 where there had been some calling. No more calling after they had passed there. Saw 1 feeding intently near bottom of east slope at 6:55. Lost it in to. Crows went back there 7:15 to 7:35. 7:36 heard quiet calling on east slope. 7:45 heard throaty call and answering higher whistly call for about 5 minutes, then quiet. Could not see either. About 9 things started to happen. A bird on east slope was calling. Watched it feed towards it. and finally disappeared into on lower east slope





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## Zonotrichia (cont.)

about 40 yds from nest, a bird from south slope (♂) who had been calling, then come over to east slope. Stopped calling as he approached, and went thru where I had last seen the other bird. He started giving the low quiet chirp, but no response. Then he worked on 10 or 15 yds and stopped, building the quiet chirp up into a loud chirp, and preening some. After about 3 minutes a bird came from tola that he had gone thru and stopped about 10 ft. down from him. He continued calling & preening, possibly didn't see the other bird, who slowly moved down to right. Then another bird came rapidly from some tola to attack. Calling bird first displayed, tilted to, then turned and chased other. Both birds screamed or throng flying but didn't take off. After 15 or 20 yds chase they forgot each other and grazed downhill about 10 yds apart, the ♂ probably not seeing the other but the other probably seeing the ♂. Snatched ♂ graze up beyond the foregreen seep (15 yds from nest) then up south hill whence he had come. Loud hee-oo calling then attracted me back to lower east slope where I picked up another bird that fed for half hour in and around foregreen seep, then disappeared into tola 25 yds beyond nest about 10:20. at 10:40 saw calling on lower east slope, starting as low chirps and building up ended by flying. Left for home 11:30.

Egg taken from nest (2 last into at 5:15 measured 51 x 36 and weighs 44 gm. \* Found slight vascular patch but no embryo

March 20 at 7:45 the midwife arrived & told of another nest on the cliffs near his house. Visited it at 8:00 and the parent was incubating. Went back at 1:00 and no parent. 9 eggs. 8 in circle and 1 in center on top of others. all well-covered with feathers. Built a blind nearby & turned grass for visibility until 2:10.



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## Nothoprocta (cont.)

Took 1 of the eggs. Size as follows:  $51 \times 36$ , 37 gms. Development of embryo about same, possibly day 12 younger than the egg taken from nest #1. (embryo = 3684).

This egg was treated as follows: it was put into nest #1 at 7 p.m. It was cloudy, temp.  $42^{\circ}$ , at 5:50 a.m. the air temp. was  $34^{\circ}$ , cloudy. air above grass clump  $1\frac{1}{2}^{\circ}$ , therm. laid in nest,  $2\frac{1}{2}^{\circ}$ ; therm. inserted into egg  $2^{\circ}$ . What keeps eggs from freezing on cold nights before incubation begins.

March 21 Walked to Tinopolis to watch nest 3. In blind at 7:00 and stayed till 9:40; no birds near nest and practically no calling. Stole 1 of the 4 eggs; nest had not been entered. The egg seemed to be about 40 hour stage, embryo with head formed. Went past nest #2 at 10:00, nobody on it, so took another egg. To my surprise there were again 7 eggs despite the fact that the other day, all cold. Hence she must be still laying. Took one more egg, which had no embryo developing.

Looked over for the red ♂ and chicks. No eggs.

The red ♂ nest was 7" inside drain, a substantial saucer of circularly wrapped grass. Most interesting is the fact that it is on top of a built up foundation of dirt and mossy turf.

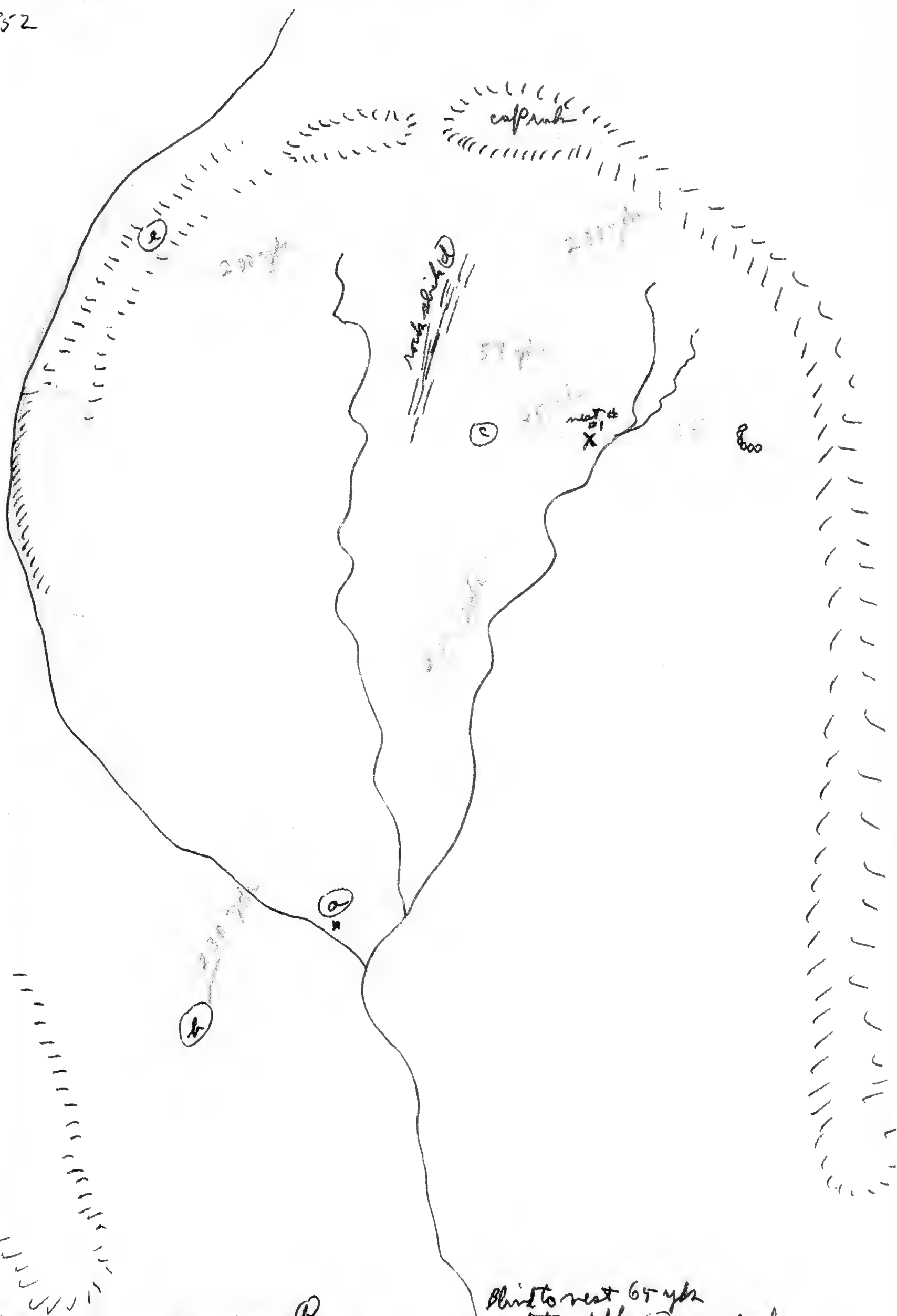
March 22 Still no trace of red ♂ and litter. Drove to Tinopolis to check nests #2 & #3. Both same as yesterday. No birds on or near either nest. Nest #2 still with 6 eggs + a yolk in rosette where I took one yesterday. Then back to nest #4 where we watched from 2:20 to 5:15. No bird near nest. Then I checked nest and found eggs gone. No mess, no shells, just gone. Nest #1 was under the big coarse yellow-green ichu. The nearby vegetation was mostly this but also considerable of the fine & brown



Muthofrocta (cont)

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nest to A = 200 yds; to feeding at B 230.  
 nest to crest C 25 yds  
 nest to rock slide D 50 yds.

blind to nest 65 yds  
 nest to saddle A 200 yds  
 A to caprock about 100  
 nest to caprock about 200



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Mythopveta (cont.)

rich and abundant thornbush, mostly the red-stemmed Margaritaria?; but also another (see specimens). The local tola was mostly Baccharis but some rigidum (both in photo), and nearby was prodrangulane.

March 24 Hunting in early a.m. at Toroga, then after lunch at Tinicopalea with Carl. at Tinicopalea between noon and 3 a.m. got 4 tinamous, all ♀♀. Nest #2 had 6 eggs, cold, re-arranged since my last visit, and one of them a bit smushed. Nest #3 with 3 eggs, no bird. Shot one ♀ on hill above nest #3.

March 25 Visited nest #2 + 3 at 8-9 a.m. No signs of occupancy so took eggs and made potato salad with them. No appreciable embryos.

March 31 Returned to Tinicopalea where they had another nest for me, to be known as nest #<sup>5</sup>. It is midway up the slope north of the hacienda. Indian showed it to me at 4 p.m. and said he had found it yesterday. at 4 p.m. ~~the~~ no bird was on nest; the 4 eggs were completely covered by abundant feathers. The nest is in an ichu clump, close along a tola bush (prodrangulane). The slope is a fairly open mixture of prodrangulane, ichu, coarse silver ichu, and thornbush.

April Visited nest #<sup>5</sup> at 5:40 a.m. Morning clear, frosty, below 26°. Bird was on. Built blind nearby. Bird left at 8:15, distinguished by black unsmoothed or ruffled neck feathers. Stole 1 of the 4 eggs, which were well-covered by feathers; it had a large embryo, probably about 3 days from hatching. With Anita watching, same bird with ruffled neck returned at 9:35.





Mothoprocta (cont.)

Then didn't leave again till 4:38. All day sunny & warm. about every 10 minutes he preened or fluffed or stood up or moved around. Returned 5:47. Still the ruffled neck bird on way out & back. One call while it was off nest.

Mary shot a  $\frac{2}{3}$ -grown one at 5 p.m. - yesterday. See her or Carl's notes for insight.

April 2 Nest # ~~5~~<sup>5</sup> destroyed overnight; 3 cracked eggs, late embryos gone. This nest made entirely of grass, foundation built up of dry earth. Nest not well-sheltered from above.

Left Pinopolco 7:45 to meet shepherd lady, some  
town for 2 more nests. Guided by her son age 4 to 2  
nests.

[illegible]

Bird had not left at 2:00 p.m., so I returned to box.  
at 2:50 bird was off nest. Watched until 4:30 and he had not  
returned, so I left until thinking I might be keeping  
him off. at 5:00 he was back on. Stole egg at 2:50.



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## Nothoprocta (cont.)

(well covered with feathers)

It was one of 9 embryos about a week or more to go. Sunset at 5:25. Temp. at 5:55  $42^{\circ}\text{F}$  or  $5^{\circ}\text{C}$ . Approached nest at 6:00. Bird flushed when I was 15 feet away (had approached within 6 feet in a.m.) and I shot it. Temp. of 2 eggs was  $32^{\circ}$  each, rectal temp. of  $\sigma$   $40\frac{1}{2}^{\circ}$ . Bird had been incubating between 1 hr. and 1 hr. 25 min. after an absence of 1 hr 40 min to 3 hrs. Brought 5 of the eggs home and put them in bureau drawer; Temp. of drawer  $60^{\circ}$  at 7:15 p.m. at 6 a.m. ~~drawer~~ <sup>egg</sup> temp. ~~was~~ <sup>was</sup>  $3\frac{1}{2}^{\circ}$ . Warmed 3 eggs under shirt till 8:30. Then egg temp. was  $28^{\circ}$ . Opened them and found spontaneous movements and heart beat. 3 eggs left in nest overnight (all cracked) and warmed in sun to  $29^{\circ}$  showed no life, but 2 of these were smaller. Weights of 8 embryos from nest #6:  $3\frac{1}{2}$ ,  $1\frac{1}{2}$  no feathers,  $5\frac{1}{2}$  well feathered,  $5\frac{1}{2}$ ,  $5\frac{1}{2}$ ,  $6\frac{1}{2}$ , 7 gms; 6 gms.

Went back to nest #6 at 7:30 and saw a bird 60 yds from nest watching me at nest. Shot it (3697)

Nest #7 - For parental schedule see A.K.P. Shot  $\sigma$  on nest at midnight. Air temp.  $29^{\circ}$ ; night clear.  $\sigma$  cloacal temp  $39\frac{1}{2}^{\circ}\text{C}$ . Temp. of 2 eggs  $35\frac{1}{2}$  and  $36^{\circ}\text{C}$ . These 2 eggs plus a third were left in nest, covered by feathers, the other 5 removed to drawer. Outside temp. at 6 a.m. was  $26^{\circ}$ . The drawer eggs were removed to sun at 9 a.m. and were  $4\frac{1}{2}^{\circ}$  at that time. Earlier they were probably  $3\frac{1}{2}^{\circ}$  as were the eggs from nest #6. At 10:30 they had warmed in sun to  $39^{\circ}$ . Opened them and hearts were beating. At noon brought the 3 eggs from nest home and opened them. Their temp. <sup>(moon temp.  $60^{\circ}$ )</sup> upon opening  $27^{\circ}$ . Embryos moved, hearts beating. 2 large eggs from this nest measured  $55 \times 35$  39g;  $56 \times 36$  42g; and a smaller one  $51 \times 35$  35g. Weights of the embryos



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Melospiza (cont)

were 15,  $14\frac{1}{2}$ , 14,  $14\frac{1}{2}$ , 12, 15, 13, 15 gms.

Nest #7 was in the center of a rather sprawling tola quadrangular, but alongside a tuft of golden ichu that grew up through the tola. Surrounding vegetation mostly quadrangular + scattered bunch grass.

April 9 Pichuichuni, 12, 600 ft. Lohan brought in a ♂ picked bean; bought for 1 sole. It was killed on the hill east of camp, probably about 12,700 to 12,800 ft.

April 10 18 km. SW Pizcorna, 14, 100 ft. at sunset saw parent and 4 or more  $\frac{1}{2}$ -grown young running on road. Parent reluctant to fly, and even when I shot + missed flew only 15 or 20 yards. Then shot it: a ♂, testis small, brood patch refeathering. Flushed 2 young, then heard 2 calling nearby: chuck-chuck, chuck-chuck, somewhat musical quality. Worked in and flushed 3 close together. One shot was a ♂, 127 grams. Squealed like adult when flushed.



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Mothura  
(Little tinamou) (Codornis)

- Dec 19 Shot 1 at km 57 west of Puro, <sup>13,200ft.</sup> on ichu slope. Ovary had follicles up to 4 mm and looked adult. Thought at first it was young of *Mothoprocta* which we shot at pretty same spot.
- Dec. 29 15 km W. of Puro, 13,000ft. Well grazed ichu grass, a few totos, many stone walls. While setting traps at 4 p.m. along a stone wall, I heard a flutter behind me, turned around, and there was a tinamou kicking its last on the ground. The belly <sup>(# 3456)</sup> was smeared with egg and egg shells and the gizzard had ruptured out. Had stepped on it while it was on its nest! A foot or so away was the grass nest tucked under several adjacent clumps of ichu. Shells of at least 2 eggs were around, plus feathers torn loose in the catastrophe, plus one intact glossy terra verde egg of relatively enormous size - 25 grams. This is as large as some of the hen's eggs sold in Puro. Under the smeared egg I could find no trace of brood patch. There were down feathers and larger sprouting feathers on the abdomen. Set 2 steel traps + continued to try for more. The one squashed was a ♂ with 10x7 testes and a crop full of big beetles. Egg was 47x30 mm, a shiny deep unsaturated lavender-gray. Embryo corresponding to 24-36 hr. chick.
- Jan 8 Pairumani. Suspect that these call like men-tits in morning & evening.
- Feb. 7 Much "men-tit" calling at gravel pit outside Puro
- Feb. 8 " " " " " at the squashed-nest place 15 km. W. Puro.





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*Nothura? (codornis) cont.*

Feb. 9 15 km. w. Puno, 13,000 ft. Much "wen-tit" calling at daybreak, while trying to triangulate Anita found another nest only <sup>20</sup>~~10~~ yds. from the one I stepped on Dec. 30. Same distance from stone wall (10 ft.), under ichu clump; contained 4 eggs. A few dry feathers in nest. I had walked 3 ft. from it while setting traps last night. Parent not seen on or near nest at 6:30 a.m., 7:30, 9:30, 11:00, 1:30. Still only 4 eggs at 1:30.

Saw 2 codornis about 8<sup>a.m.</sup> in grass "hedgerow" between small fields (potatoes and small green unknown crops). Anita also saw one. at 10 went hunting on long walk and saw none. Codes of ground beetles, possibly same as the ones found in crops on Dec. 30. Vegetation overwhelmingly ichu. a little *Tolera* (quadrangular + *Baccharis*) and cactuses, plus 1" tuft grasses and green mats. By 8 p.m. no signs of adults near nest.

Feb. 10 Still no adults near nest; took picture and removed 2 eggs. One 44 x 30 mm, ~~shiny~~ glossy purple-grey, underdeveloped but not stinking; white somewhat congealed locally.

Shot one at 50 km. post from Puno, 13,200 ft. It was one of 2 or more together, and a perdiz was only a few yards away. Perdiz escaped.

Feb. 16. <sup>3 singles w</sup>~~2 seen in~~ ~~the~~ 13,300 ft. (km. 52 ±). Flushed 1 *Nothura* diving into our camping place in the ichu on the valley floor, and 2 other singles while setting traps, 1 on the flat and 1 on hillside.

Feb. 17 Flushed one on flat in early morning, and watched several feeding near corral. Saw 3 singles there in the morning, and in the late afternoon saw a single feeding up a green tongue into the ichu (about 4:45 p.m.) and a pair dither at 5:30 p.m. Tried to locate a nest at each of the



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## mothura (cont.)

places where they disappeared, but no trace. Perhaps  
 signifiant that each of these was moving uphill at sundown.  
 Some "wen-tit" calling in morning, very little in evening.  
 P.S. Those feeding near the coral, and which moved uphill  
 at dusk ~~were~~ were almost certainly *Nothoprocta*.

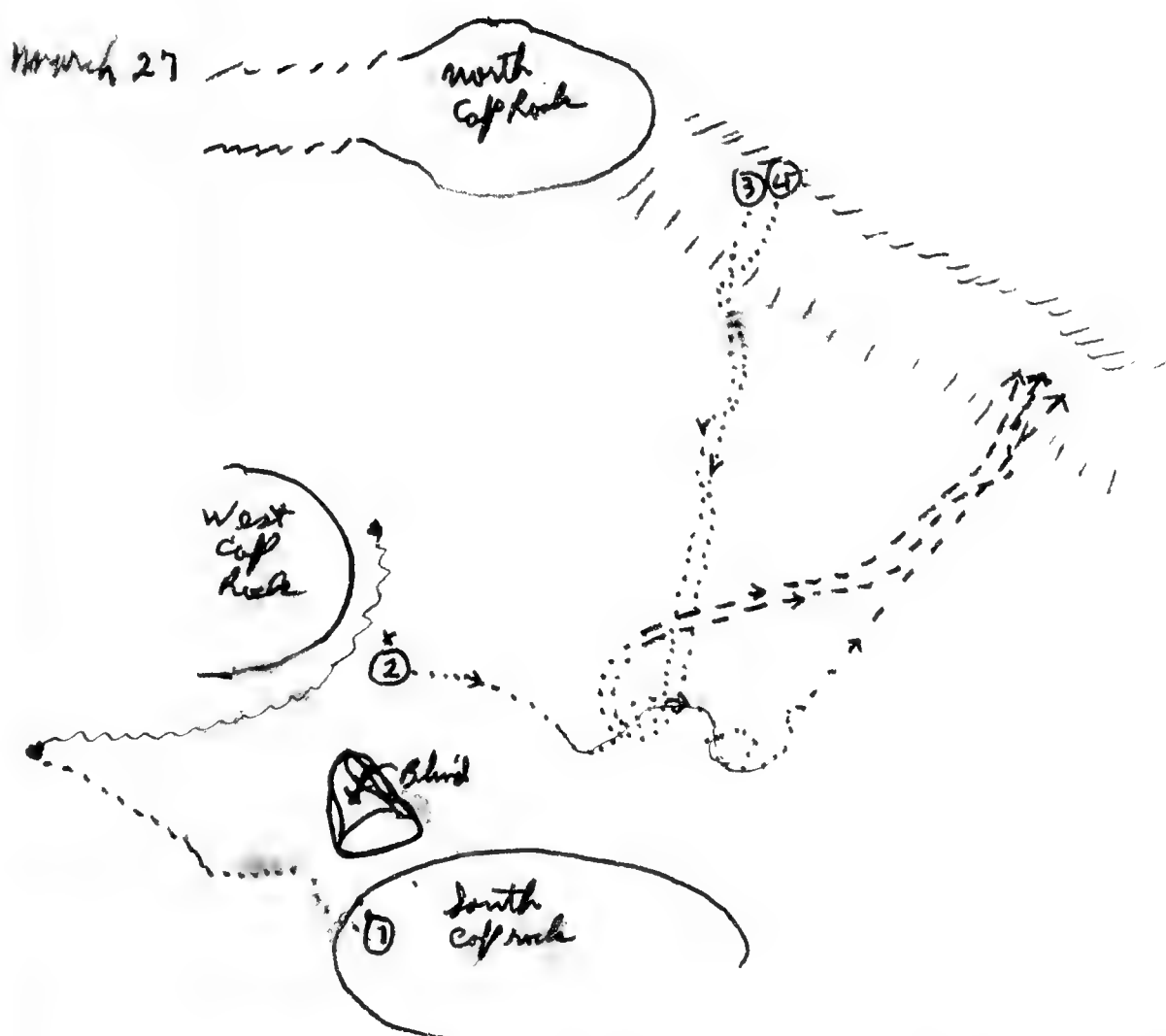
Feb. 21 In summary of our stay 3 km. W. Vique. *Mothura* prefers the  
 valley bottoms, is frequently found in wetter parts with a short  
 bunch grass (see specimens). They are seldom seen on the ground,  
 sometimes run as approached. Many more are flushed by walking  
 around before 8 a.m. than after 10 a.m. In fact we flushed  
 practically none after 10 a.m. By repeated triangulation, no  
 individual case entirely satisfactory but many fairly convincing,  
 I am convinced that the "wen-tit" piping at 6 a.m. and 6 p.m. is  
 made by *Mothura*. Anita claims she saw one making the  
 sound. When flushed they do not give the long series of pleasant-  
 like squeaks of *Nothoprocta*.

April 10 Pichupichani, 12,600 ft. While leaving our tree area thru  
 Pampa Coral said she saw 2 baby tinamous out running  
 here. We stopped, stumped around, flushed 2 adults  
 about 20 yards apart, but couldn't find young.



Pearson  
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Timamotha (cont.)



① Found tracks about 8:50. Bird at spent night up in rocks (bare patch in snow plus 3 feathers). It had walked (no signs of feeding) about 300 yds when Mary flushed it. Flew about 300 yds, landed as indicated around end of West Cap Rock.

② About 9:15 found tracks of ② and traced 10 yds back to nest with 6 uncovered eggs. Bird 2 had fed within 150 yds of nest; then ran one north ridge ( $\pm 350$  yds from nest) in company with ③+④.

③+④ Found tracks came down hill from about 400 yds away toward nest. Reached within 100 yds. of nest; then ran NE, join tracks of ②, disappear over ridge.

Returned to observation rock at 10:30 via saddle between N and W Cap Rock. Didn't see bird on nest (no binoculars), so built blind. At 10:40, saw a bird standing by nest, then plink off North. Thinking I had frightened it and that blind was too close, moved at 11:00 to more distant perch. When Koford came  $\pm$  11:20, we looked at nest and there were 5 eggs, uncovered.



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Tinamotis pentlandii

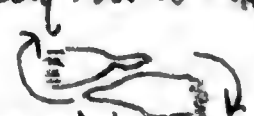
at 12:35 a bird approached nest cautiously, squatted over it for about 2 minutes facing first one way, then other, then sat. Then about 15 minutes of nest arranging, nest building, and preening. Sitting quietly when Anita took over at 1:45.

Watched again from 4:45 to 6:00. Bird on nest, mostly quiet but some reaching out and tucking in detritus.

March 28  $\frac{3}{4}$ " snow, temp. at 6:00 25°. Reached nest at 7:30 a.m.

Bird had spent night on nest and left before I arrived. Eggs well covered with grass. In addition, considerable short lengths of grass strewn around nest. Calling heard North of Rock at 7:30 and south of blind at 8:00 - several birds. No birds near nest when I was relieved by Anita at  $\pm$  9:00. Bird had returned before 4:30 p.m. when I relieved Carl. Still on nest when I left at 5:00.

March 29 Morning cloudy, a bit snowy. Arrived at nest 6:00 a.m. Bird was on nest, quiet. Stood up at 6:29, spent about 2 minutes pecking around periphery of nest and tucking detritus into nest. Then stepped off nest and (mostly pecking at grass clump on south side of nest) spent about 5 minutes throwing grass, *Pycnophyllum*, and ?pebbles? over its shoulder in direction of nest. Then fed slowly off north into same region where he fed last night, about 100 yds beyond nest. Followed him until 7:15, then lost him. At 8:25 heard a single bird calling near where this bird was last seen, then saw him calling. In between his ee-o-ee-ee call was frequently a growling sound followed by a chuck-chuck. Couldn't tell who was making this sound. After 1 minute of calling a bird approached from left and came almost or actually in contact with calling bird. They faced in opposite directions.



(top view)





Pearson  
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Tinamotis pentlandii

and circled around. There may have been a slight amount of feather fluffing but not much. After about 3 or 4 circles the tit-a-tit developed into a chase up the slope to the north. Lost one bird during the chase. The other stopped when about 200 yards beyond the nest and started calling again. Called for about 2 minutes, then sat on top of the rock for at least 5 minutes, preening occasionally. He then moved while I was looking for the other bird and so I lost him. Spent considerable time trying to re-locate them and cursing the telescope tripod. Next watch by MK.

Rechecked antenna at blind at 4:50 p.m. Bird on nest. Started snowing about 5 p.m., too snowy to see nest at 5:15, so left blind and set 3 steel traps.

Visited nest #1 at 11 a.m. 6 eggs in nest: 3 intact and 3 broken open on top side, still some yolk in them. Two completely broken and empty shells 2 feet from nest. No tracks.

March 30 Watched nest #2 from 11:30 to 2:30. Bird on all time. at 1:15 a squadron of thrushes fed past nest, many within 3 ft. of nest, one within 1 foot. Bird on nest ignored them by preening and nest construction. Pulled several feathers and added to nest, at least one of them from breast.



-1952

Hnallata = CHIL

- Jan. 6 Eduardo's sons say that hnallatas nest up in cliffs along the river and that the chicks are in the river now. Everyone agrees that they nest in the cliffs and that the parents carry the chicks on their backs when they are 2 or 3 days old from the nest to river or lake.
- Jan. 8 Indian at Pampa Viscocha says woman carries young in her back.
- Jan. 12. Flocks of 12 flying at Pampa Viscocha.
- Jan. 13 Several pairs fly up along the base of the hills each morning away from Lago Luche, frequently only a few feet above ground.
- Jan. 17 5 km. E. Lago Luche, 14,600 ft. We have several times seen hnallatas sitting & walking out on the bare desert. Today, in the middle of the barest desert around (see photo) I found a huge egg just sitting on the surface. It is white, tough,  $80 \times 57$  mm., and weighs 132 gms. Too small for rheo, so probably hnallata. It was fresh & edible) yolk quite orange.
- Jan. 21 Shot a ♀ (the smaller of a pair) on the edge of Lago Luche. She had one ovum ready to lay, 3 others very close.
- Feb. 6 Saw a pair & young on the Rio Huarque at the gorge. 7 black & white downy young about the size of bobwhites and 2 of 2 to 3 times this weight but still with down. They swam readily under the guidance of the adults.
- When we were at Paurinani before (Jan. 8) one of the Eduardos saw young along the river.
- Feb. 7 Tracks in cave in gorge of Rio Huarque. Some cave had *Musculisquicola* nest.
- Feb. 16. Km 90 from Puno, lake. Pair with 9 downy young size of 10-day chicks, all same size.



. PEARSON

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Huallata (cont.)

Feb. 21 3<sup>rd</sup> mi. W. Vique, 14,000 ft. the owner of this hacienda showed  
up today with 3 baby huallatas the size of 1-2 week chicks.  
Feet + bill black, wings quite long. took photos.



1951-1952

## Thruvorn

- Jan. 10 Saw downy young at Hraylarco about Dec. 26. yesterday at Pampa Viscocha 4 p.m. flushed a pair and found there a shallow nest in mat grass. Nest of short pieces of grass, contained 4 eggs, each about  $40 \times 28$  mm, neatly arranged with sharply pointed ends down, speckled brown round ends up. Went back at 5 to photograph but no parents about. Returned 8 a.m. and two was feeding 10 ft. away; no parents, eggs cold although covered with bits of short grass. Took photo.
- March 9 Saw flock of 30 today (82 km. W. Puno, 14,000 ft.) This is the largest I have seen. Others of 6 or 8, occasionally pairs. Have heard none of the "flying" call lately.
- March 23 A flock of 15 frequently seen on hill above our camp (Toraya, 14,000). Occasionally hear flying noise. When a flock is nervous and thinking about taking off they give a butter-squeak like an angry Microtus. They also have a rather unusual bell-like note.
- March 31 A squadron fed past Tinanota nest #2 at Hraylarco alto, some within 3 feet of nest. Many seemed to run from 1 Pycnophylus nest to another to feed. Run like rails or sandpipers, certainly not chimney. Frequent sticking on tip-toe and flapping wings.





## Hummingbird

Dec 7 Rio Torata, 11,200 ft., 15 km NE Torata, Moquegua. Saw one or more striking black hummingbirds. They frequently land land while feeding and often flit from rock to rock to perch. The rocks may be only a foot high, although larger boulders and bushes are available for perching. For a time he perched in front of a mine tunnel.

Went back to the tunnel at 7:45 p.m. with carbide lamps. Just as I entered a hummer took off and flew noisily, hovering in front of me. It was trying to leave the tunnel and I was waving my arms trying to keep it in. In the skirmish it flew into the carbide flame and extinguished it and thereby escaped. Another hummer took off when I had gone in another 6 feet. This one too flew into the carbide flame and extinguished it, but by using my emergency flashlight I captured it. Then I saw a nest attached to the ceiling with a bird in it. Grabbed it. It was warm to the touch. There was a large quantity of small bird droppings at the entrance.

Dec 8 Found another blue-stone tunnel about 30 feet higher on the hill. This contained bat droppings, an old hummingbird nest, and near the entrance heaps of bird droppings reminiscent of a heap of candle droppings. Did not disturb anything in expectation of going back late tonight to collect more hummers and get temperatures.

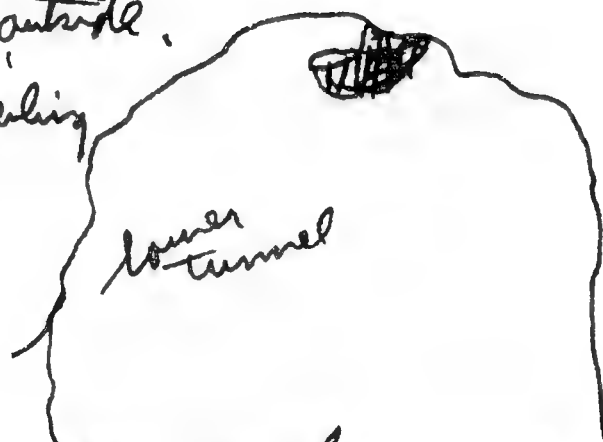
Dec. 9. Lower (nest tunnel)  $5 \times 5 \frac{1}{2} \times 75$  ft. temp. at 12:30 a.m.  $15^{\circ}$ ; outside  $5^{\circ}$ . Nest 18 ft in and  $5 \frac{1}{2}$  ft above floor. Nest of birds were in first 12 feet. Temp at 12:30 noon on sunny-



PEARSON  
1951-1952

Hummingbird 2

booy day  $16\frac{1}{2}^{\circ}$  inside at nest,  $18^{\circ}$  outside.  
nest fastened by overlays to ceiling



at 12:30 a.m. went into upper tunnel. a ground tyrant flew; caught him. Then a streaked spine tail flew, body temp. warm. Then a hummer flew but escaped. Then another hummer flew; caught him. Then caught a torpid hummer. It was hanging from the ceiling, actually hanging from a vertical fracture, using tail to help support herself. Temp of tunnel here, 25 feet from entrance, was  $14^{\circ}$ ; temp. of bird in gullet  $14\frac{1}{2}^{\circ}$ . Kept her alive until next morning when she was normally active.

Photographed her.

In the lower tunnel at 12:30 caught 1 active hummer (may have been the one that escaped upper tunnel) whose gullet temp. was  $36^{\circ}$ . Tunnel  $14^{\circ}$ .

In afternoon found another tunnel nearby. This one too had the remains of a nest, about 20 ft. in.

after travelling over into the next valley south, at 11,200' also, we looked in another tunnel and found remains of another hummer nest. Hence of 4 tunnels that we have looked in, each had a single nest. Of the 5 hummers we caught in 2 tunnels, all were ♀♀.

Dec. 15 Rio Santa Rosa, 13,300 ft. <sup>thought she</sup> saw a hummer come out of a flicker-like hole in a stream bank.



PEARSON  
1951-1952

Hummingbird 3

Jan. 1 4 km. E. Juli, 12,500 ft. While setting traps along the "seaward" end of the peninsula along the rocky shore, found 4 shallow caves, 3 of them with hummer nests hanging from the ceiling. The caves were "inactive" sea caves, but heard one other active sea cave. One cave about 5 feet high, 5 wide, and 7 deep had a nest with 2 eggs. The best was more like a crevice 4 feet wide, 15 feet high, and 20 feet deep. This had a nest about 12 feet up containing young. This and one other cave had small bat-like droppings, maybe swallows. Went back to 2 of these caves at 10 p.m. In the big crevice were 3 sparrow hawks, 2 of which I caught in butterfly net, 1 rufous-crowned flycatcher, and 1 ♀ hummer. The ♀ sat on the nest while I caught the other birds. Her rectal temp. was  $39 \pm$  and 1 of the 2 young 38. Both young were almost fledged and had mid-ventral streaks of brown feathers, which I think is character of adult ♂. One hummer escaped from the crevice. On the cliff about 50 feet from the crevice and 25 feet up two caracaras sat in contact but did not fly. The nest was well-cemented to the ceiling and was made of wool, feathers (many of them not hummer), grass, leaves, moss, etc. 100 yds away I caught the ♀ on the nest (warm to touch), the eggs in first few days of incubation. Also several inches back in a crack was an immature streaked sparrowtail? (see tarsus specimen; tail pulled out trying to drag it out of crack)

Jan. 3 See Journal for Jan. 3

Feb. 6 Found 2 nests in gorge of Rio Huanque. One a shallow cave, the nest containing a single young ready to fly. Green gerygone and



1951-1952

brown mid-ventral line. Other was a nice little cone contained  
1 or more naked young. Many of adult clinging to side of nest.

Feb. 7 Visited latter cone at midnight. Parent on nest was awake,  
escaped, and not seen near nest next morning while taking  
movie of <sup>this</sup> cone. Temp. at nest at 12:30 a.m. was  $8^{\circ}$  and  
outside  $5^{\circ}$ . at 9 a.m. cone was  $13^{\circ}$  and outside  $11^{\circ}$  (cloudy bright  
and scattered sunshine).





PEARSON

1951-1952

Colaptes

Jun 8 Pinarra. Parents feeding many young in holes in mud cliffs at our old camping place.



Cinelodes fusca

(Rio Torata, 11,200ft)

Dec 9 Anita found a nest in a stone wall holding up the road, about 100 yards from the intermittent stream. Two nestlings, almost feathered. The parents did considerable foraging in the green seeps, where tiny toads were abundant, and down along the gulch. On the ground they run rapidly ~~with~~ with alternate strides. Took some photos of parent entering cavity, then shot one to see what ~~it~~ was feeding. On that trip it was a grub, but inside the nest cavity, which was about  $1\frac{1}{2}$  feet in from the entrance, was the remains of a 2-inch toadpole. One of the young had only unidentified remains in gizzard (a couple of bones which may have been small frog or toadpole, and some green vegetable matter). Another parent returned to care for the remaining young after we shot 3404.



SPECIES ACCOUNTS  
MAMMALS



P. PEARSON  
1951-1952

## Dusinyon

Dec. 3 at 8:30 a.m. 5 km. S of Mazza saw a fox along road. Several shots with barret but missed. It looked smaller than the Caceribera fox. After a couple of sighting shots etc. we got in Benz and drove off. Then saw 2 more foxes in the road <sup>only a couple of hundred yards further on.</sup> One was even smaller than the first, accompanied by a  $\frac{2}{3}$  grown one. Shot the larger of these two. It was a lactating ♀ with 3 placental scars (2+1), red remains in stomach. The young was reluctant to leave when the mother was shot.

April 28 Pichupichuni. at 3 p.m. saw fox on ~~camp~~ <sup>camp</sup> beyond our census area. He was sniffing back & forth, stotting, making short dashes, peering or sniffing down holes. Watched him with binoculars for about 5 minutes at 400 yds, then took movie camera and approached to 75-100 yds. He showed only slight concern and continued above entirely in middle of area where guinea pigs were abundant, trees rare. He used cautious stalks followed by dash (unsuccessful), but most of the time nosing back and forth, head close to ground. After about 20 minutes and perhaps 15 short dashes he caught a guinea pig. This was not after a stalk, but just a side dash while nosing along. He ate it on the spot, which took about 2 minutes. During my watching he urinated about 5 times. Shot him. Two other guinea pigs in stomach in big pieces. No byproducts or traces





D. PEARSON

1951-1952

abodon boliviensis

Dec 31 5 km. W. of Puno, 13000ft. Discarded 8 caught in ichu-  
racks: Three half-grown (1 ♂ 2 ♀♀) and 4 ♂♂ with big testes  
and 1 ♀ mid-preg. (1 left + 3 rt.)



P. PEARSON

1951-1952

Polomys berlandieri

Dec. 9. Rio Forata, 11,200 ft. Anita caught a late/pregnant female at same place as a half-grown young.



P. PEARSON

1951-1952

Amphicoelus boliviensis

Dec 12 Pampa Vieja, 14,900 ft. Many (dozens) seen among rocks at edge of green seep (see photo) both in afternoon and morning. Some adults, but mostly young one third to half grown. Even the little ones about 10 grams scot about and act quite independent.



1951-1952

## Galena

Dec. 16 Saw several colonies on Pampa Anulata and shot 4, but all disappeared by sunset. Saw one house cat sitting out on the pampa, presumably hunting g. pigs. Also one dog sitting, and one trotting along with something in his mouth about size of g. pig.

among 3 dissected so far, 1 late preg., 1 lactating + early preg or resorbing, also saw a wild ♀ nursing a third to half grown young

Feb. 5 Saw young the size of Phyllotis on Pampa Anulata.

April 11 Some associated with *Ctenomys opimus* on pampa SW of Pizacoma at 14,000 ft.

April 15 Guiraca near Pampa Capazo at 14,200 ft.





## Logidium

- Dec 7 Rio Torata, 11,200 ft.; 15 km. NE Torata, Moquegua. Saw two large ones in tailings from a mine. Big angular chunks of blue stone. These are lowest I know of in Peru.
- Dec 8 Anita shot one of these. Contained 30-mm. fetus.
- Dec 10 Mr. Shane, an American engineer, saw a hawk this morning carry off a viscacha.
- Dec 22 Laguna Salinas, 15,000. a ♂ had big testes but somewhat dark & flabby; sem. ves. medium; rust & grey molt pattern.
- March 14 82 km. W. Puno, 14,000 ft. 3 shot today: 1 late pregnant, 1 early pregnant (about 20 mm CL), 1 young adult ♂. Carl shot a recently pregnant female 2 days ago. Have not seen any babies in the colonies during the past month.
- March 23 Wides shot here (82 km. W. Puno) in the past few days have been infesting conditions. Of 3 ♀♀, one late preg, 1 recently preg., 1 parous but not recently preg. Almost all have had abdominal round worms.
- April 12 Recently parturient ♀ at Livini.
- April 25 Casodora. Lactating ♀♀ seen in the big colony, and numerous grey, lively,  $\frac{1}{3}$  rd to  $\frac{1}{2}$  grown young - probably only a few weeks old. Of 3 ♀♀ shot, 2 were lactating non-preg., one nulliparous.



1951-1952

*Tamias pervarus*

Dec 17

Ante a few times with guinea pigs near the plane side of Camp Quallacota. Ante saw 7 at once and I watched 3 sticking their heads up from the same low mound, all within 15 feet of each other. They ~~were~~ <sup>appeared</sup> much more abundant this morning than last night, and were bubbling beautifully, especially just before a crash dine. They differ from opimus in bubbling in being less shy ~~and~~ or at least spending more time looking out of their burrows, and in coming out onto the surface to feed. They seem not to have to burrow so much as opimus, for several (at least 3) will be found living among a set of burrows with no signs of recent digging. Ante saw ~~a guinea pig coming from a tunnel (in fact being~~ <sup>go into</sup> a tree go into a tunnel only 2 feet from a guinea pig. Neither trees nor g. pigs appeared in the morning until well after sunrise and the temp. had risen above freezing.



1951-1952

Oryzomys peruanus

April 7 Pichipichuni. Camped last evening ~~too~~ in middle of a pampa truly *mollograda* with trees. This morning aimed several bottle-bubbling I marked off an area 90 yds square for censusing, then hunted on some of the pampa nearby. After lunch <sup>(2:00)</sup> counted on my area all the burrows that showed signs of being used in the last day or so. The soil is a grey clay, and ~~it~~ is not good for showing which diggings are brand new. I counted "new" diggings and "very new" diggings. The "very new" were certainly used today, the "new" probably used in the last few days. The 90<sup>2</sup> yd area contained 319 "new" burrows and 245 "very new". When I had finished my census at 2:30, I waited a few minutes and then from Bus counted 16 trees on the area. They had probably been kept underground by the census for 1-2 hrs and may have been hungry. At the same time, in a 90° transect from Bus (including the census area) 117 animals were visible at the same time. As many as 25 of these may have been guinea pigs, but the rest were trees. Started shooting on the area at 2:45 and collected 7, plus one 2 ft. outside the boundary. Total score for day was 16 trees, and 15 of them were ♀♀ & all by shooting. At 4:55, after collecting 7 from the census plot, 7 were visible. Some trees were still out at 5:15 and kept bubbling at 5:50.

all collected today had distinct white ~~original~~ + apillary pattern. Separates of fetuses (all ♀♀/preg) mostly ♂!

April 8 Collected more trees on the 90-yd census area and along its boundary. Total from area now 21, but only 3 ♂♂. Saw a few guinea pigs on one edge of the area today, but none



1951-1952

yesterday. Still at least 3 trees left.

Have seen as many as 5 trees within 5 yds of each other. Saw one run 3 or 4 feet today towards another, then back again. Associates seen so far are Chameas, Amblycorys boliviensis, lizards + birds in the burrows (see specimens), many Pura murina, occasional black + white plovers.

April 9. Excavated a burrow in center of a cluster of holes where 4 lactating females had been shot. <sup>Hole</sup> ~~Burrow~~ where 1 lactating ♀ was shot connected with hole where another lactating ♀ was shot 10 feet away. Nowhere more than 8" deep. Differs from opimus burrow in great number of branches. Hardly more than a foot without a branch. Found 2 chambers. One mostly full of droppings, other a nest. It was about 1 foot down, ending 6" below surface, about ~~2~~ 6-inches deep. Floor with about 2-3 inches of grass-tuft etc. a few droppings, numerous "earrings".

Ants has definitely lost the juveniles bubble, especially one that is probably litter mate to 3735 (64 grams). Saw 3 feeding today within 4 ft. of each other, 2 of them actually in contact and used same hole when frightened. Both full grown. Saw about 2 juveniles fligs on the area, one used a hole on the area.

Four more trees collected on the area today (one a juvenile) making a total of 25. Two juveniles definitely remain, possibly 2 adults also. No signs of invasion yet.





1951-1952

April 10 One adult seen on area still, near a boundary. Today's take 3 juveniles, one of them wandering out on surface, caught by hand (3751). Shot a Puma Miner on the area, but only wounded (broken wing). It promptly ducked down a tree burrow. When I went up a lizard ran down same burrow. I went off and got a shovel, came back, and started to dig, whereupon the bird appeared out of another hole a few feet behind me.



All tucos caught here have had white pattern as stippled above. More conspicuous on ♀♀ than ♂♂.

Today's take of 3 juveniles makes a total of 28 tucos taken, one known to remain. No sign of invasion although the area on each side was heavily populated. In fact, area on far side seemed much more densely populated. Besides guinea pigs etc mentioned earlier, add to the associates Thomomys, harmata, and the short-tailed Hesperomys sp. nov. ~~sp. nov.~~ Picked a 3-foot-square area on the census plot with "typical" vegetation and dug up all the plants. Got an unknown amount of roots, perhaps 10 percent. Cleared off dirt roughly and stored the forest in a flour sac. Will have to wash in river to get clay-soil off roots. Most of census area has no vegetation more than  $\frac{1}{2}$  inch high. Nearby are areas of forest but these are only lightly or not at all populated by tucos. My area is in the center of about 50 acres of similar terrain all heavily infested. The guinea pigs mostly around the edges. The pumpa here is a mile across. No tucos



P. PEARSON  
1951-1952

Chomys peruanus (cont.)

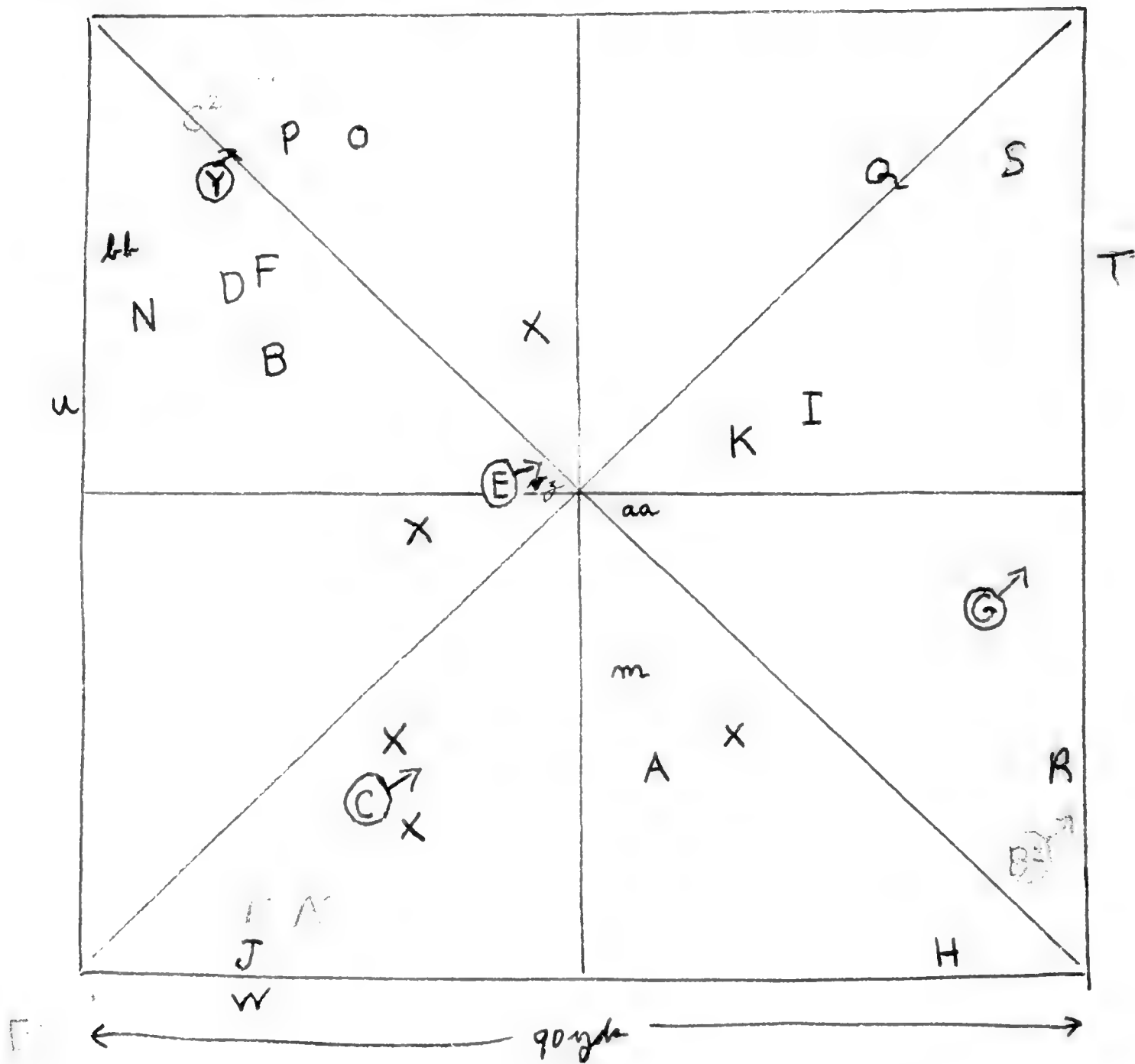
- on slopes or to south, next colony about  $\frac{1}{2}$  mile north.
- April 11 Washed dirt off vegetation sample in river at Chalapalea. Didn't know what to do with little dead leaves + detritus that floated to surface, so discarded them. This problem was not encountered with the "coverts" from the *Tutupaca* sample. In the washing process have lost as much as 5% of living roots + leaves. Some dirt remains for further softening + washing.
- April 14 Further washing of plant sample in river below Jogo Dudo. Lost more dead leaves and probably some living roots. Total loss of living material may be about 15% in form of roots left in situ, and washing losses. Washed sample is now stored in sac to dry.
- April 24 After sun-drying the plant sample weighed 527 gms.
- April 28 Returned at 5:15 a.m. to our *Pichipichuri* census area. It was obvious at a glance what had happened after a "rest" of 18 days: guinea pigs had moved in, but few trees. Previously I had never seen more than 2 guinea pigs on the area at any one time (and those near the end of our decimation), and doubt that more than 2 lived on the area, possibly none. This morning I saw 10 at once and think at least three were living on the area. Some were only  $\frac{1}{2}$  rd grown, probably only a week or 2 old. Hunted the area all day and shot 3 adults and 1 baby: 2 males and a lactating female (the baby only 6 wks from the ♀). Don't know of any remaining, but think it possible that 1 to 3 adults remain. May be a few babies too, since these are very hard to see (but could be present). The ♀ + baby were shot at a point where we know one adult resided 18 days ago, so the invasion from heavily populated surrounding area in 18

# Tuco census

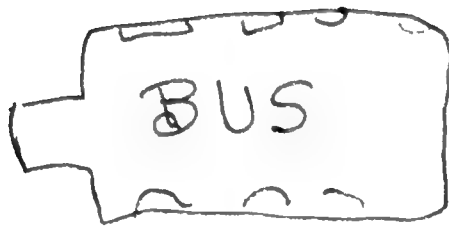
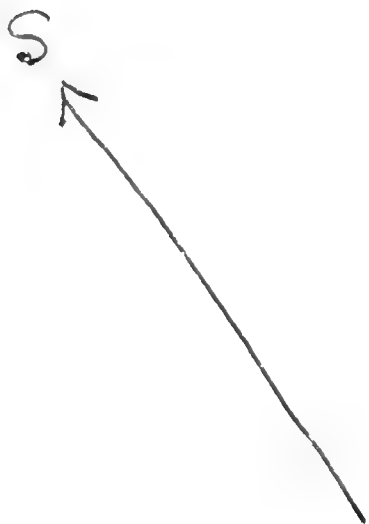
Scale: 1.5 cm = 9 yds

April 7-8- 1952

Hd. Pichupichuan, 12,600 ft., Dept. of Puno, Peru.



X = unnumbered ♀  
small letter = juv.



PEARSON

1951-1952

Chomomya peruanus

day seems to be 2 adult ♂♂ & a dozen guinea pigs.  
Interesting in this regard is the fact that a male saw a  
Tucos "charge" 2 feet toward a guinea pig today. & the  
guinea ran off.

The baby tucos shot today could "bubble" almost as  
loud as adult.

add to fauna of the area done (Metropedia) and  
for. The latter hunting guinea pigs at 3-4 p.m.  
about 200 yds from the census area.

Left 4:30



1951-1952

Ctenomys sp.

April 11 Returned to our Lirine camp site to collect more of this two.  
 Number of fresh droppings about as before. Set 13 two traps.

April 12 Fair catch of two, but mostly juveniles or small females. Several caught by belly skin or hind feet; here there were backwards also. Terrain here is very sandy, one would think too sandy for tunnels. Vegetation is primarily Festuca orthophylla with scattered tota rigidum. Many feeding holes open under these plants, and pencil-thick stems of rigidum are nipped off cleanly at these holes. Tails of these twoas pull (with difficulty) whereas Peromyscus doesn't.

April 13 More trapping in morning - Despite considerable hunting we have seen none of this species above ground here (or even ahead). Drove up and over the crests, then down to the pass between Lirine + Chalchalen. The twoas go right up to the <sup>edge</sup> of the Festuca, in fact sometimes a succession of dirt mounds shows where one struck out for the continental divide, but none seem to reach the divide, although only a few hundred yards short.

There are scattered droppings down the flanks of <sup>Lirine</sup> ~~twoas~~, across the Pampa de Titire, which slopes flatly but steadily up toward the divide, down to the river, camped where the short-cut road leaves the main road; lots of droppings; put out traps after lunch. By 4:30 had 5 twoas, no more at dusk. These are all smallish ones, some looking quite Lirine-ish, others more openine, as we had hoped. Still can't decide whether they are intergrades.

The substrate is sandy gravel, vegetation a mixture of tota rigidum and Festuca and small dwarf bunch grass (see photo). More of the twoas here bubble. They cut tota rigidum.

April 14 Shot a Lirine-ish juvenile at 7:30 a.m., and saw fresh digging at 8.





D. PEARSON  
1951-1952

Othorhynchus sp (cont.)

Traps not nearly as successful as yesterday. Left them out until 4 p.m. then left for Copago.

associated up on Limic, besides mice trapped, one mouse, Thirionus, T. monachus, mairich?



1951-1952

Ctenomys opimus

Dec 11 Lago Luche, 14,500 ft. Many tunnels near here. Sr. Juan Pulgar calls them "cortenejos". They live in the festuca hills, out on the short-grass pampa H nature, and in the "carrot" desert. The latter is a most interesting habitat. As one drives past one sees nothing but sand + reddish gravel, sprinkled with tree droppings, the new droppings darker than the substrate because the soil brought up from as little as 6" down is moist whereas the surface is dry. Close inspection of the surface reveals rather abundant plants, mostly little rosettes of leaves flush with the surface and with a big fleshy tap root. In a 2-ft-square plot I excavated a fruitful of these "carrots" (3 or more species).

Four shot today, all ♀♀; 1 imm., 2 lactating, 1 preg. No bubbling heard yet in this region, probably all opimus. Pulgar says they squeak like a mouse.

Dec 12 Two Indians encountered called them Tococeros.

Dec 16 Rio Santa Rosa, 13,300 ft. Caught 2 in McAbbe gopher traps among toll and festuca. One between 4<sup>pm</sup> and 7 a.m., the other between 7 am and noon. Both were alive, both caught by hind leg. From their size in relation to gopher trap, both must have been going backward when caught. Both gave grunting noises when handled. Both fat. One while digging in a coop box of dirt used front feet plus simultaneous kicks backward of hind feet.

Jan 10 Pampa Vascoba, 8 a.m. One feeding on a low mat? Senecio? near seed-suck nest. No dirt at hole; like a gopher feeding hole. Never emerged more than half-way. Would scrape with teeth or front feet at the mat in which the hole opened.




D. PEARSON  
1951-1952

Citellus oregonus (?)

for 4 to 15 seconds, then disappear into the burrow for perhaps 30 seconds. Sometimes manipulated food with one paw, appeared at least 12 times and allowed me to approach and photograph from 15 feet.

Jan. 11. 5 km E Lago Sucho. Walked around my census area east of burr at 7 am. Saw & marked 10 new diggings (since dawn) ~~on the~~ on the area. At least 8 probably represent distinct tubes because they are separated by 20 yards or more. Afternoon before had been rainy & windy, evening calmish; at dawn we were in a cloud, temp.  $38^{\circ}$ , followed by sun.

at 10 there were 3 new diggings that looked separate and 3 or 4 others near ones already marked. On the basis of digging up until 10, then, one would guess the area supported 10 or so tubes (assuming 1 tube per fresh set of diggings). Saw only 1 on each of my rounds.

When digging, they stick their head out, look around, then duck down out of sight. Puffs of dirt then appear out one side of the hole . After perhaps 15 seconds the tube appears head first, looks around, then emerges completely crosswise of the burrow and with simultaneous flips of the hind feet pushes the dirt round further away. By swinging his hindquarters around in ~~a horizontal~~ an arc and kicking he pushes the excavated dirt further away, thus preparing the way for more dirt to be kicked out of the hole.

~~at~~ Hail, snow & rain from about 2 to 4. No new diggings on census area at 6:30 pm, hence no diggings since the snow stopped at 4 despite calm weather. Sprinkling of snow on ground.



1951-1952

Ctenomys opimus (3)

associates so far in the pure desert have been 3499 (<sup>sewatta?</sup> ~~Puna minor?~~), Trinomys, vicinus, and albica. In the neighboring Festuca-rock habitat add 3500 (~~cutt-cutter?~~), Psococinus, and Thrinacosus.

Jan. 12 Two in front of bus started digging about 6:30 a.m. (down about 5:00). Two others near my observation rock at 6:45. One of these worked rather steadily until 7:45 and had made a fairly good-sized pile by then. It then appeared at another hole about 15 feet away and first grazed a little, then dug. Two others nearby (one about 20 yds and the other 30 yds beyond it) were still digging at 8:00.

A half-grown young appeared near my perch about 7:45, sticking head out of feeding hole and apparently grazing a little. It was quite shiny black with practically no brown - looked somewhat like a sea lion. It then appeared about 3 feet away at a feeding hole under a Festuca and here it ground off several tufts of Festuca culms at the bottom and each time disappeared down the hole with them.

On my census area at 10 found 20 new diggings, all





1951-1952

*Ctenomys opimus*

except about 2 being near previously marked diggings. Most were either additions to yesterday's piles or new piles only a few feet (usually about 3) away. Saw 3 traces while during the rounds, 2 of them quite tame and allowing approach to about 20 ft. One left the burrow (not recently dug) several times about  $1\frac{1}{2}$  ft. and scratched + milled at plants. You can frequently see their scratchings in the sand.

Wounded one at a burrow and tried to dig him out. Followed tunnel about 20 ft. to under a tota + then under a big stone slab. Several short blind diverticula, tunnel nowhere more than a foot below surface. Ended up at a nest under ~~the~~ slab. A few cups of old moldy droppings and old cut grass, then a half of new dry grass in length of a few inches. also several big "earring" parasites such as we found on a previous specimen.

Jan. 13

Add to associates in the Festuca-rock area Elgmodontia, took 3506, Dusiagon, Vicuna. Went to my watching rock about 7 but neither of the closest 2 traces were digging (in fact neither had dug by noon. Morning was sunny and warmer than yesterday. The third of these traces began digging at 7:15 about 2 ft. from yesterday's dig. At 7:45 one near Bus was dropping and another had already dug. The baby appeared at the same Festuca hole about 8:15. Shot him.

Went over my census area at 10 and added 11 new bones = 11 new piles and again at 11:30 and added 3 more. also started harvesting the area by shooting a ♂ at station 21.

at 3-4 p.m. set 15 ~~Mus~~ gopher traps, <sup>one</sup> at each of the new diggings: stations 2, 3, 9, 11, 11, 12, 12, 12, 14, 15, 16, 19, 20, 21 +



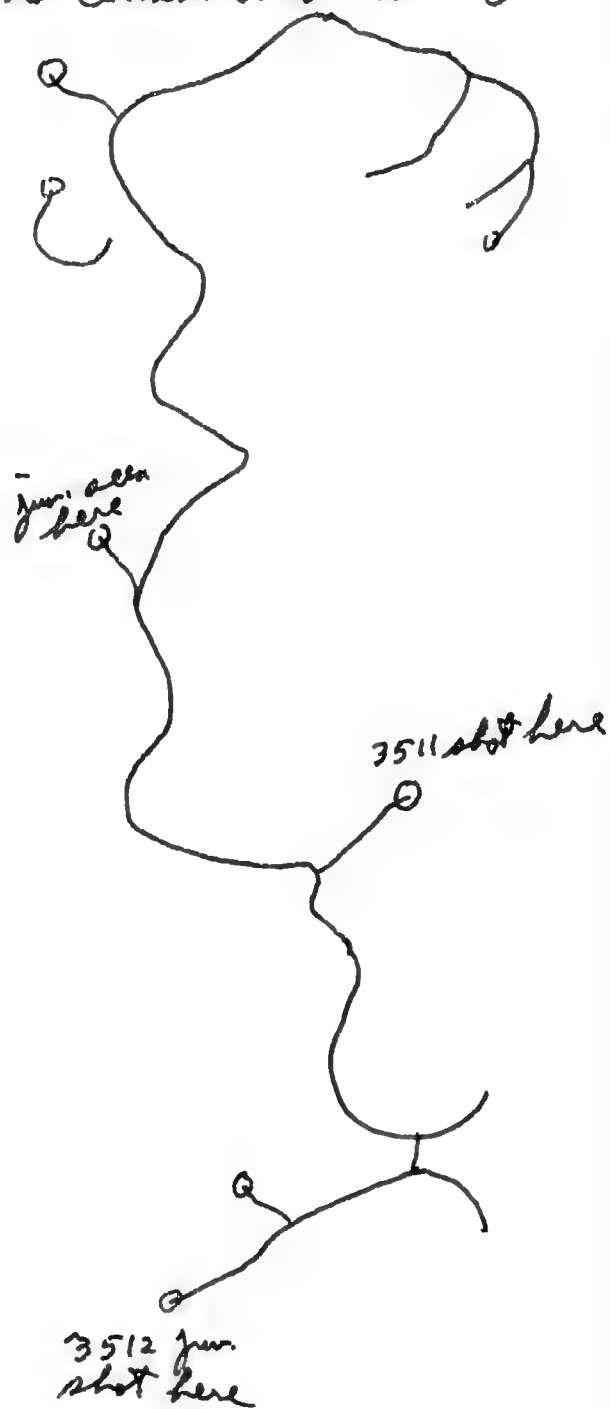
1951-1952

*Peromyscus maniculatus*

Saw no trees during this period - windy cloudy.

Jan 14 One tree in my 15 traps (caught by tail) and 4 sprung, one of these (at station 2) with fur + gore. At 8:00 found only one new digging and by lunch time only about 4. Maybe the snow, which was gone by 8:00, or my disturbance setting traps yesterday kept them from working. The 2 closest at my watching rock didn't work either, but various others did. A fox visited various diggings on the census area, white-tailed hawk nearby. Shot <sup>two</sup> 4 on the census area in the morning and at noon dug out a burrow system occupied by lactating ♀ 3511, juvenile 3512, and one other juv. of same size but not collected yet. Found no nest, only one collection of moldy droppings and another mixture of droppings and recently gathered grass, leaves etc. as before not many bifurcations, nowhere deeper than 15".

18 yards



at 6:30 when it was snowing checked my traps; they were untouched. Noticed that the snow was

staying on the census area and most everywhere else, but that on the hill to the left of the center of my area it was melting as fast as it fell, leaving a muddy stew. The soil here is clayey and this area is untouched by trees. The light ~~is~~ sandy gravel



1951-1952

*Onychomys leucogaster*

preferred by trees apparently immediately above ground but just as *micromys* do.

Jan 15 My traps in same place caught nothing - only one spring in a.m. at station 11. Spring again at 6:30 p.m. Only 3 fresh droppings on the census area: at 11, 9, and near 18.

Scarcity of droppings due to my removals, my disturbances, weather, or? add to fauna of pure desert *Aravallata*. Saw them twice today sitting, standing & walking in the desert, but not feeding - but maybe worried about observer.

The location of shot near station 18 this morning had done a slight amount of excavating from 2 slanting holes about 3 ft. apart, plus feeding scratching around one of them. About half way between it had started another hole from the surface. It was 4 or 5 inches deep but definitely blind. Fodder as though there had been an old hole there but totally collapsed. Tried to dig out the rest of this location. Found one moist nest made mostly of the brown bracts of the flesh plants but probably not the current nest. Numerous fresh bits of plants in the tunnel. In places this tunnel was as deep as 21". Dog tracks went across area.

The two nearest my watching rock was above ground but didn't do much digging. Several others dug as usual.

Walked up the road to more deserty region to see how far out from grass the burrows went. In no place was all trace of trees absent, but nowhere is one further than 200 yds from at least one tota or one clump of Festuca. Found no fresh droppings more than 75 yds



1951-1952

*Stenomys eximius*

from at least some Festuca, but lots of old diggings 200 yds out. One large clump of Festuca all by itself had fresh diggings under it and 2 trails of diggings radiating. There are certainly more trees within 50 yds of "standing" vegetation than out in the desert.

concerning voice, they occasionally make a sound somewhat like the flutter of a small-bird's wing. This is an alarm call, made as they disappear down their burrow, not soon to reappear.

Jan 16. At my watching rock in the morning 5 fresh diggings were visible and 3 trees were digging at the same time. The closest one dug for about an hour and only took a couple of bites to eat during this time - these from the untouched side of the hole. At the close of digging she did a little more feeding from this side of the hole. She dug up small plants by scratching with the front feet and biting, then carried them down the hole in her mouth to eat. She did practically no eating above ground. After activity had apparently stopped I left and came back in a half hour. She had then done a small amount of digging at the holes of ~~from~~ 3+4 days ago and was doing more feeding, less digging than before. I think the new diggings are not primarily for feeding, at least not immediately.

The brushes on the hind toes are used for cleaning mud off of the posterior ventral fur (lower belly). This region gets quite dirty from digging. Twice I saw the close & scratch this region, using one hind foot at a time dog-fashion.

Only 2 new diggings on the census area, one at 9 and one at 11. Set traps at them and at 10:30 caught a ♀ at 11.





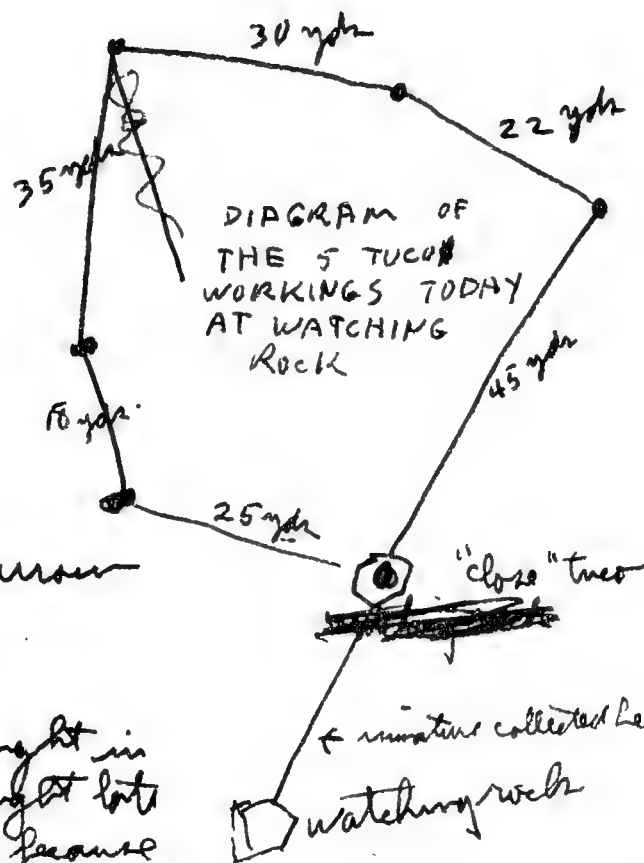
P. PEARSON  
1951-1952

by the skin of the belly.  
This hole was 4 yds from  
where ♂ 3515 was caught  
Jan. 14. So far this is only  
record of 2 adults in same burrow  
system. Record as follows:

Jan. 13-14 - adult ♂ 3515 caught in  
trap overnight (probably caught late  
afternoon or early evening because  
died of exposure & soaking)

Jan. 15 - fresh diggings at same burrow, ~~trap~~ trap sprung but nothing in it

Jan. 16 - " " 4 yds away in a.m. Set trap and caught pregnant  
♀ 3520.



Ante saw a young tuco at the place where locating ♀ 3516  
was shot yesterday. Since she (3516) had only one placental son,  
this is probably the only survivor there. We tried to dig out the  
nest yesterday; seeing the young one today induced us to  
dig further. Continued the excavation to 18 yds with no  
startling discoveries except that it reached greater depths  
than we have before encountered. Much of it was at  
a depth of 30 inches, hence slow going. We stopped  
before reaching the end; left 3 large Sherman set  
for the young.

Ante went hunting in a.m. and got 4 tuco, saw several  
others. One of them was a half-grown ♀ - larger than the  
juveniles we have gotten so far. One apparently had been shot  
or injured in front leg (possibly on our previous trip  
through here), and the claws on that paw were much  
longer than on the other foot.

Business has definitely slowed down on my



P. PEARSON  
1951-1952

*Ctenomys opimus*

census area. I now know of only 3 weas remaining: one at 9, one at 24, and the juvenile at 18. Including these the total for the area will be at least 12 (which includes 3 juveniles).

Jan. 18 The industrious two below Bus who has so neatly and punctually produced a new mound each day (see photos) has the following distances between holes (from south to north, hence chronologically: 4 ft, 4,  $4\frac{1}{2}$ , 10, 6, 4, 8, 8,  $7\frac{1}{2}$ , 6, 5, 5, 9, 5, 7,  $5\frac{1}{2}$ , 7, 9, 4, 5. The piles look like they average about 11 qts. If the burrows average  $9\frac{1}{2}$  ~~cm.~~ in diam, then it appears that of the tunnel dirt is brought to the surface.

at 8 a.m., cloudy bright, shade temp. was  $7^{\circ}$ ; moist soil  $\frac{1}{2}$  cm below surface,  $12^{\circ}$ ; two burrow 12" deep  $7^{\circ}$ .

Jan. 19 No fresh diggings on census area, but presumably we failed to remove one at 24, one at 9, and a juvenile at 18. Since 24 and 18 are home ranges only half on the area, we might say that only 1 adult remained, and 1 juvenile. Thus, the area supported ~~11~~ weas:  $8\frac{1}{2}$  removed including 2 juveniles,  $1\frac{1}{2}$  adults not removed, and 1 juvenile not removed. Total: 3 adult males, 4 adult females, 2 juvenile males, 1 juvenile sex undetermined, 1 adult sex undetermined.

Feb. 1 *Lomys aeneus*, 13,700 ft. Here is a *pony* not unlike that below Mojosung - low *Margyris* type. tufts of grass about 1" high, plus numerous little wet plants. Woods of 2 sp, byrds, grazed by llamas, alpacas & sheep. Would have expected *Ctenomys peruanus* at Mojosung, but no bubbling and 3 caught are near to *opimus*. The ground in which they are living here is less sandy, earthier, than in other *opimus* localities, with more



*Teromys opimus*

grass and turf. They make fewer dirt piles, smaller piles, more holes look like feeding holes. The holes are smaller, also; most I can barely get my hand in. There is considerable surface feeding on grass, beet, + thorn bush. They lops off whole branches neatly. When caught in a trap and pulled out of a hole, they snort.

Up on the divide (14,550 ft) between Amawaca and Capazo (where we shot a *Levine*-like specimen), is gravel - Festuca - tola country more typically *opimus* country and where we took 2 *opimus*.

Feb. 3 Panpa Capazo. Under the cold rainy weather conditions the trees seem to be more active in the late afternoon or evening. By 10 a.m. had seen only 1 fresh digging and no trees. Traps in afternoon yesterday caught 4 pieces of skin, and overnight 2 trees (one a baby). Both seem to be good *opimus*, the terrain Festuca - tola (*rigidum*). This is only a mile or 2 from the lower Panpa where the more *rufus* specimens came from.

A kilometer or 2 up the road we came at 10:30 upon a soccer field cleared out of the tola, dominated by *Pycnophyllum* and the 2" tuft grass. It was sunny and trees were sticking heads up. Shot 3 (one immature), missed 2, hence 5 or more per acre. Certainly denser here than in the uncollected tola surrounding the field.



D. PEARSON  
1951-1952

Ctenomys opimus (cont.)

April 16 5 km. E. Lago Luche. Returned to our census area and found what appeared to be 12 sets of recent diggings. Set out traps in late afternoon.

April 17 Shot 1 and trapped 3 trees on the census area, and 3 traps had hair in them. No fresh diggings appeared. Saw doves on the census area, and ground tyrant.

April 18 No fresh diggings, and no traps sprung on the census area. Collected dove (gold shoulder patches = Metriopelia?), ground tyrant (Muscicapula flavinucha?) and Phyllotis boliviensis on the census area.

at 11:30 a.m. (air 55°) temp. in 2 burrows 8" below surface were 7° and 9° C. at 3:10 (air 52°) when ground should have warmed up most 2 tunnels registered 9° + 10° C.

April 19 No fresh diggings on area, no traps spring. Took burrow temps at 5:30 when should be coldest: 3½° and 4° C.

Highest diggings on way up Titiripoco were 15,800 ft.

April 22 Still no new diggings on the area.





P. PEARSON

1951-1952

*Chromola frumosa* (cont.)

37898

37918

3792

37908



P. PEARSON  
1951-1952

Virena

Dec 12 Many herds between Lago Virena and Pato Grande.  
Mostly 6 or less, one of 10, and one of 25. On the  
cocaobara road along the stretch where I expected to  
see 20 or 30 herds saw only 1. None at all in  
our valley (cocaobara)



## Llama guanicoe

Dec 5 12 km SSW Arequipa, 8500ft. Had just parked bus about 200 yards off road when I saw herd of 8 guanicoes (7 together, 1 100 yards away) ~~at~~ about 400 yards away. They were worried about us but not alarmed. They look ~~like~~ larger than vicuñas, no apron, black face from distance (but grey up close). Some were rich rusty color and some more grey. Two about half or  $\frac{2}{3}$  grown. I stalked them - down wind - without much difficulty to about 200 yards and shot 1 adult ♀. The rest ran off up hill, one of the young lagging behind the others. They all stopped to look back from 400 yards. No sound.

The victim had 4 nipples (inginal) no milk but some mammary tissue, was pregnant with fetus all arms, legs & neck; quite skinny. Fetus  $26\frac{1}{2} \times 4\frac{1}{2} \times 8\frac{1}{2} \times 2\frac{1}{4}$ . Stomach of mother with coarse brown vegetation (no green vegetation nearby). Large scent glands on hind legs and interesting sternal pad. Also pad behind hoofs.

~~Made no sound~~



SPECIES ACCOUNTS  
REPTILES





1-1952

Frogs + toads

- Dec 27 Hnaylarea, 15,000 ft. at 2 p.m., overcast, cold wind blowing, turned over stones. Found 4? toads. Under one stone was 3450 with a rectal temp. of  $11\frac{1}{2}^{\circ}\text{C}$ , and another toad (3451?). The temp. under the stone was also  $11\frac{1}{2}^{\circ}$ .
- April 1 Tmofalea, 13,600 ft. Yellow-footed toads were wandering about in hot sun at 1:45 forap on tola (quadrangular) hillards (nest #4). One caught and wrapped in bany bagging out of pocket was completely dehydrated in 3 hrs.
- April 21 5 km. E. Pogo Diche, 14,600 ft. Some small black toadpools in a shallow Distichia pool in a seep were active at 7:30 a.m. with  $\frac{1}{2}$  inch of ice on the pool. They were on the bottom where the temp. (water  $3\frac{1}{2}$ " deep) was  $3\frac{1}{2}^{\circ}$  and (6" deep)  $4^{\circ}$ . Later in same pool saw metamorphosing toads of the tiny brown toad with stripes down center of back.
- April 22 Took notes of toadpools under ice in shallow Distichia pools. about  $\frac{1}{2}$ " of ice. Temp. at bottom of a 1" puddle with active toads was  $2^{\circ}$ .

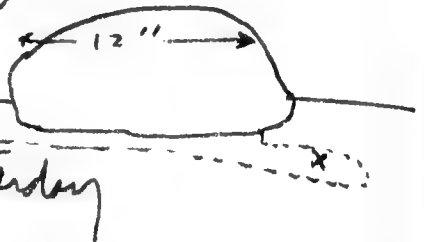


1951-1952

Liolacemus multiformis

- Dec 26 <sup>Huaylarco:</sup> Anita found a nest with an adult ♀ 3441 and 4 or 5 young (3442-3445) under a rock (Huaylarco, 15,000 ft.)

plus one dead, curled up young of same size. They were under same rock this morning as yesterday afternoon.



- Dec 27. <sup>Huaylarco:</sup> Frog + lizard hunting at 2 p.m. while cloudy with cold wind. Ground (top of) temp. near stone with lizard under it was 8°, lizard under 1 ft. stone rectal temp. 15°, temps. under stone about 12°. A large black spider was in the "nest" with the lizard. (3446)

Under another stone was a big ♂ with rectal temp. <sup>(3447)</sup> 9 1/2°, and under another 2 juveniles. The juveniles seemed more active than the adults.

Under 2 stones found remains of adults.

- Jan. 12 5 km. E. Lago Luche, 14,600. First lizard (adult) seen at 9:00 a.m., air temp. in shade 44°, rock in sun 21°. Caught young, about - about 35 mm. An adult had a few insects and probably plant remains in stomach.

- Jan 13. 5 km. E. Lago Luche, 14,600 ft. Flies buzzing in sun at 8:15, shade temp. 5° but no lizards out. First big lizard seen at 9:00, shade temp. 9 1/2°, sun on rocks 20°.

- April 1 One large ♂ basked on large rock in <sup>(Tingobalca)</sup> hot sun from 1:56 to 2:10 - sun not maximum, thin but distinct whispy cloud. Also on same rock from 2:26-2:35.

- April 18 5 km. E. Lago Luche, 14,600'. See today's temp. record. Big lizard out at 8:00 a.m. Small-med. shot at 8:00 with rectal temp. 31°C. At 8:30 a big ♂ (S.A. 91 mm) with rectal 29°. This one squeaked while being carried in sac. A big ♂ put out into sun at 9:40 at 10:00 was very lively with rectal 35°; substrate sand was 39°, shade 11 1/2°. At 10:05 he was put



1951-1952

Liolaemus cont'd

into shade of rock, tethered. at 10:32 with rectal  $12\frac{1}{2}^{\circ}$  he was sluggish but could run slowly; shade temp  $11^{\circ}$ .

Anta's big ♂ on census area was out at 2:40 when he was cold in overcoat. He was sheltered from cold wind by his rock. Temp. under a lizard rock at 3:00 was  $12^{\circ}$ .

A big ♂ discovered under a rock at 4:30 had rectal  $24^{\circ}$ ; shade beside rock was  $9^{\circ}$ ; duff under rock  $12^{\circ}$ .

Tethered captive in shade at 4:45 had rectal  $7\frac{1}{2}^{\circ}$ ; shade temp.  $8^{\circ}$ . He could walk slowly, right himself, but hard & long. at 5:40 his rectal  $4^{\circ}$ , air  $7\frac{1}{2}^{\circ}$ ; could walk slowly & right slow. at 7:00 " "  $1\frac{1}{2}^{\circ}$ , air  $1\frac{1}{2}^{\circ}$ ; very slow walk & righting, hissing.

Their burrows here are under boulders, in grass clumps or tola clumps, or in tree burrows out in open. Some of the ones under boulders they seem to have dug themselves (Anta saw one digging).

April 19 ~~at~~ at 7:20 caught a big ♂. He was slightly sluggish with rectal  $14\frac{1}{2}^{\circ}$ . Shade temp. at this time only  $24^{\circ}$ ; sandy substrate where I caught him  $7^{\circ}\text{C}$ .

Anta's ♀ emerged at 7:30 and bashed at entrance to burrow. at 7:55 jumped at ~~at~~ insect, moved around onto higher perch. 7:56 ♂ arrived, ♀ ran off and around 5 ft away, pumping up & down, ♂ bashed on grassy perch she had left; 8:02 ♀ ran off 15 ft. at back; 8:05 ♂ defecated by lifting hind quarters, arching tail; 8:12 ♂ moved to ♀ perch she moved off 3 feet; 8:19 2 ground tyrants flew over, ♂ and ♀ took shelter, ♂ reappeared in  $\frac{1}{2}$  minute; 8:20 ♀ reappeared on stone  $1\frac{1}{2}$  ft. from ♂, 5 ft. from home; 8:35 ♂ approached, ♀ ran, etc.

♂ usually stopped on perch & vocated, he was more sluggish and not pumping. til 8:35 (when I left) they preferred basking on water



P. PEARSON

1951-1952


Liolaemus (cont'd)

of dead Festuca. always composed themselves on slopes so their back was fully exposed, almost at angle to sun's rays.

April 21 Big ♂ appeared by ♀ rock between 7:45 and 7:55. 7:58 ran 5 feet to back on dead grass, some pumping. 8:00 fly took off next to me, probably its first flight of the day. 8:01 ♂ ran 30 ft. toward me, more pumping (push-ups). 8:10 ♂ onto rock. 8:28 bigger ♂ appeared from down gulch and chased (at 8.20 feet, later at his tail as they ran. 8:40 a ♂ walks up gulch to one of the nasal grass: berries 5 ft. from ♀ burrow. When approached he walked on & around ♀ rock but not into burrow. Tip of his tail molting.  
At 10:20 faint tethered cold ♂ 2 ft. from ♀ rock. 10:28 saw molty-tail ♂ approach pumping, climb on ♀ rock, then at 10:30 attack repeatedly. This ♂ lives under a rock about 20 ft. from ♀ rock.

5 km. E. Lago Inca

April 22 at 6:55 a.m. encountered a large ♂: rectal 19°, substrate 5° (sand), air 23°F.

Temp. at 7:05 under a lizard rock (but no lizard) was 4½°. at about 8:00 set up to take movies of molty-tailed ♂ (#3829). Tethered a ♂ outside his burrow and another outside burrow of ♀. He, however, approached me, then passed me to my left. Just after passing me another lizard dashed from up behind me and disappeared behind a toward the ♂ and both disappeared behind a Festuca. When I peeked, a ♂ and ♀ were "mating", finally settled in a copulatory position, the ♂ with a firm bite on side of ♀ neck. They held this position for 15 minutes without a wiggle while I took movies from 15 feet. Finally ♀ wiggled & broke loose, lay  they ~~stood~~ sit by side // for about 1 minute, then ♀ dashed off behind Festuca. ♂ then stood up higher, licked his chops while I did a fadeout. Then ♀ dashed back, bit ♂, and ran off again (see movie). Caught her in a hole under Festuca - lots of dry Festuca stuff, old tunnel. ♂ then backed home and fought with ♂ tethered in front of his burrow.

April 23 Coocobora, 15,200 ft. at 7:30 a.m. encountered a large dark ♀ on dead grass with rectal temp. 23½°, air 34°F. Took photos of ♂♂ and ♀♀ from Lago Inca to show variation: ♂♂ above, ♀♀ below. Also 2 pictures to show color change with temperature of 38°F. First picture rectal temp. 9°C; second 37½°. In full sun at 2:40 p.m. a small-medium rock-basking ♀ had rectal 33° and a 100 mm. ♂ 34°.

April 24 Tethered 3 lizards out in sun at 7:40. Their temp was 1°C., their sizes 54 mm ♂, 70 mm ♀, 93 mm ♂. at 8:15 their temps were 31°, 27°, + 19°, respectively. air temp at this time 31°. at 8:35 rectal 28°, 31°, 26½° respect. at 9:20 28°, 29½°, 31° respect. at 12:20 the small one 34°, medium 33°. Pete stepped on the big one at the 9:20 reading and it acted stupid or 'twitched' ever after. Shot a large ♀ at 9:05 with rectal 33° 33.

April 25 Caught big ♂ at 7:45 with rectal 13°, young ♂ at 8:25 31°; large ♂ 9:45 34°; large ♀ 10:20 37°; med. ♀ 10:30 34°. The coocobora ♀♀ are fatter, more snake-like than those at Tutyfoca, and have bigger eggs. The young also seem bigger.





P. PEARSON  
1951-1952

Lizards (cont.)

April 29 Put 3 lizards out into sun at 7:12 a.m. (10 km. SW Huaculco, 12,900').  
They were a small ♀ 54 mm, fairly large ♀ 84 mm, large ♂ 108 mm, all from Coahuila. The ♀ 84 mm was dead, which I did not know at start.

	<u>small</u>	<u>med.</u>	<u>large</u>	<u>air</u>				
7:12 -	4°	3°	2½°	28°F	7:55 -	24	24	30½
7:22 -	16½	10½	10½	29°	8:17 -	29	26	33
7:32 -	20	17	18½	30°	8:46 -	33	34½	35½
7:42 -	24½	18½	22½	31	11:00 -	33	36	37
								55

May 10 After driving from Juarez to Tres Cruces to Cuzco to Chavira to Chihuahua: have seen no lizards in this distance.



PEARSON, O. F.

MISCELLANEOUS LOCALITIES

WASHINGTON, New Mexico and  
CALIFORNIA.

JULY 1952 - JUNE 1954

CATALOGUE NOS. 3939-4036

JOURNAL

SPECIES ACCOUNTS

BIRDS



# CATALOGUE



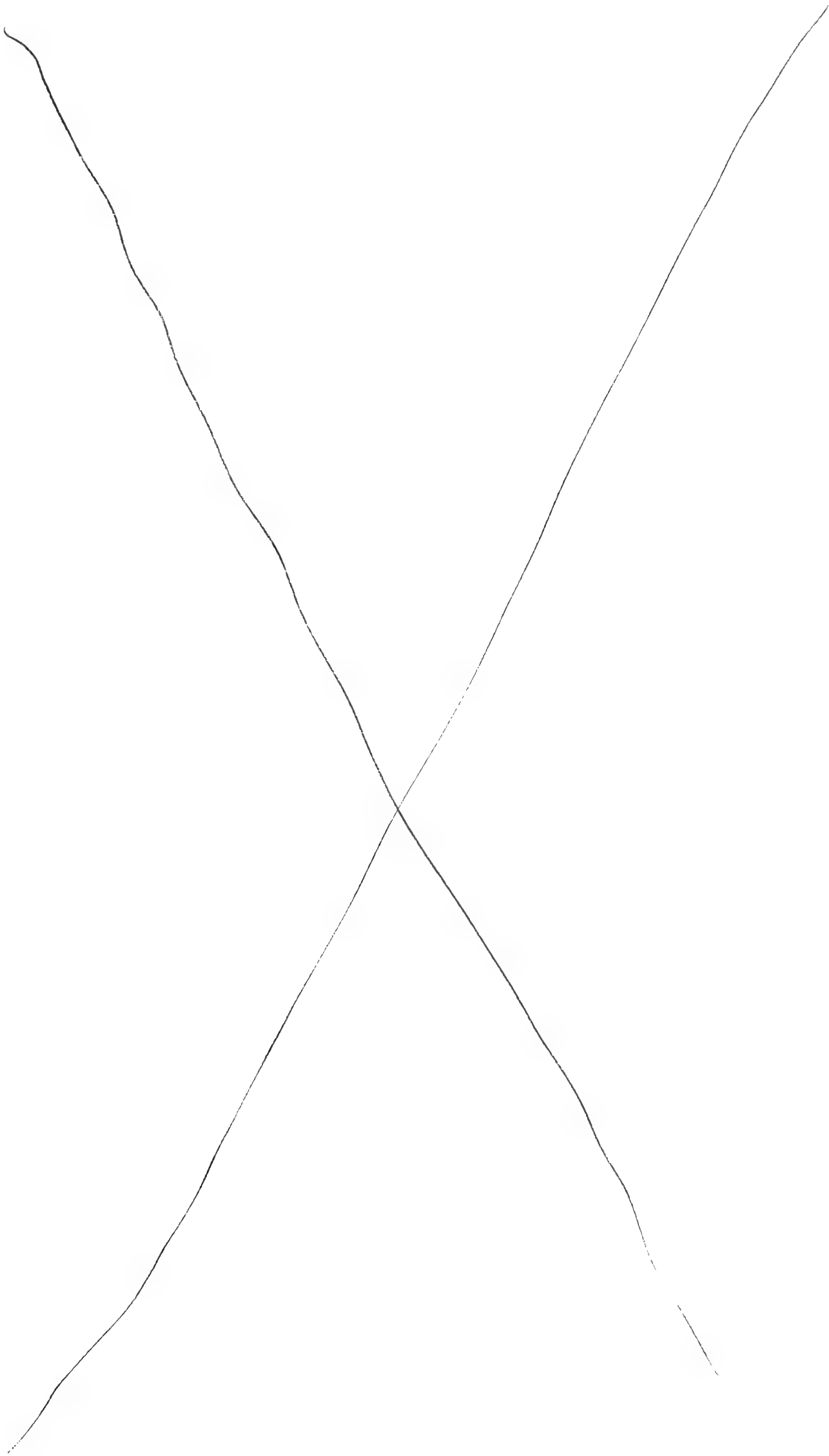
P. PEARSON

1952

10 mi NW Quilcena, Jefferson Co., Wash.

July 19, 1952

3939 Aplodontia rufa rufa see Pfeiffer 83 296 x 24 x 55 x 18 ♂  
3940 " " " see Pfeiffer 78 336 x 20 x 57 x 23 ♀







1952

6 mi. E. Trujillo, 10,000 ft., Rio Arriba Co., New Mexico  
Sept. 4

3941 Zapus vagrans monticola 109 x 46 x 12 x 7 5½ g.

3942 ♀ Myotis volans interior 95 x 41 x 9 x 14 8½ g.

3943 ♂ Microtus longicaudus mordax 155 x 54 x 20 x 14 29 gm

3944 ♂ Eutamias minimus operarius not fat 200 x 90 x 31 x 17 50 gms

3945 ♀ Microtus longicaudus mordax 170 x 58 x 19 x 12 43 g

3946 ♂ Eutamias minimus operarius not fat 212 x 91 x 33 x 18 45 g

3947 ♂ Junco 21 g

3948 Thomomys talpoides fossor 220 x 64 x 28 x 7 101 gms

3949 " " " ? ? ? ? 109 gms

3950 ♀ Citellus lateralis 272 x 79 x 39 259 gms

3951 ♀ Microtus longicaudus mordax emb. 157 x 54 x 20 x 15 39 gms

Sept. 5

3952 ♀ Myotis volans interior fat 97 x 46 x 9 x 15 10 gms.

3953 Myotis volans interior slightly fat 100 x 45 x 9 x 14 8.5 gms.

3954 ♀ Thomomys talpoides fossor no emb 215 x 55 x 28 x 6 108 gms

3955 ♂ " " " 208 x 58 x 27 x 6 105

3956 ♀ Eutamias minimus operarius 200 x 81 x 31 x 16 51 gms.

3957 ♀ Microtus longicaudus mordax 94 x 70 x 20 x 15 53 gms.

3958 ♀ " " " 156 x 54 x 19 x 12 29.5 gms

3959 ♂ " " " 182 x 59 x 20 x 14 47 gms

3960 ♂? kinglet 5 gms

3961 ♂ chickadee 13 gms

Sept. 6

3962 ♂ Zapus princeps princeps

3963 ♀ " " "

3964 ♂ " " "

3965 ♀ Stellar jay

testis 6 mm, some fat  
 218 x 127 x 31 x 13 24 g.  
 uterine immatures. some fat  
 214 x 130 x 30 x 15 21 g  
 testis 5 mm, little fat, kids not prime  
 208 x 132 x 29 x 13 22 gms

180 gms



1952

Sept 73966 ♀ Sorex vagrans monticola3967 ♀ Zapus princeps princeps

3968 ♂ " " "

very fat 112 x 47 x 13  
 205 x 124 x 29 x 12  
 some fat. testis 6 mm.  
 225 x 133 x 32 x 12

7 gms.

Truchas Peak, N slope, 12,500 ft. Rio Arriba CoSept 73969 Sorex vagrans monticola

106 x 46 x 12

6 1/2 g

3970 ♂ Swabrook

testis 2 mm

57 gms

3971 ♂ " "

52 gms

3972 ♀ " "

55 gms

3973 Thresh

31 gms

3974 ? " "

30 gm

3975 ♀ Grouse

1.6 lbs

Truchas Peak, N slope 12,000 ft.Sept. 7.

3976 ♂ Thresh

28 gms.

3977 ♀ Eutamias minimus operarius

no fat. about 12,300 ft  
 203 x 88 x 31 x 15 49 gms. interm. juv.

6 mi. E Truchas, 10,000 ft., Rio Arriba CoSept. 83978 ♂ Zapus princeps princeps 212 x 126 x 30 x 14 24 gms.16 mi. NE Pajarito, 8750 ft Santa Fe Co. N.M.Sept. 93979 ♂ Sorex vagrans monticola

107 x 48 x 12 x 7 5 gms.

3980 ♀ Microtus phenacomys intermedius intermedius no emb

144 x 33 x 18 x 15 35 gm

3981 ♀ Peromyscus maniculatus

158 x 68 x 18 x 20 24 gm

3982 ♂ Eptesicus fuscus pallidus

112 x 44 x 10 x 17 fat 14 1/2 g

3983 ♀ Myotis volans interior

96 x 42 x 9 x 14 fat 9 1/2

3984 ♂ Thomomys talpoides fossor

178 x 44 x 27 x 62



1952

16 mi NE Pojoaque, 8750 ft., Santa Fe Co., N.M.

3

3985 ♂ Eptesicus fuscus pallidustestes 3 mm.  
fat  
119 x 47 x 11 x 17 16 gms.

3986 ♂ Warbler

6  
gms.

3987 ♂ Nuthatch

10 1/2 gms.

Sept. 10

3988 ♂ Nuthatch

10 gms.

3989 ♂ "

10 gms.

3990 ♀ Woodpecker

56 1/2 gms

3991 ♀ Flicker

124 gms.

3992 ♀ Kinglet

7 gms.

3993 Warbler

EXCH.  
COLL.Sept. 11

3994 ♂ Microtus

testes 13  
162 x 54 x 20 x 13 42 g3995 ♀ Zapus princeps princeps

208 x 127 x 30 x 13 24 gms

3996 ♂ Peromyscus maniculatus

143 x 66 x 19 x 18 14 gms

3997 ♀ Thrush

30 gms

3998 ♂ Towhee

51 gms

3999 ♂ Sciurus aberti aberti

460 x 206 x 66 x 43 1.3 lb

4000 Woodpecker

64 gms

Sept. 124001 ♀ Peromyscus truei?

186 x 96 x 22 x 23 29 gms

4002 ♂ Neotoma mexicana fallax

298 x 127 x 35 x 27 121 gms

4003 ♀ Eutamias minimus operarius

207 x 88 x 30 x 17 44 gms

4004 ♂ Peromyscus maniculatus

159 x 67 x 19 x 18 20 gms

4005 ♂ Woodpecker

66 gms.

4006 ♂ Eutamias minimus operariustestes 4 mm  
205 x 86 x 30 x 16 50 gms

4007 ♂ Jay

107 gms

4008 ♀ Colaptes auratustestes  
267 x 77 x 42 x 17 203 gms



1952

4

4009 ♂ ~~Sphen~~ *Sylvilagus nuttalli pinetis* <sup>testis 7mm</sup> 345 x 17 x 91 x 64 1.3 lb.

4010 ♂ ~~Scoloporus~~

4011 ♀ *Peromyscus maniculatus* <sup>6 emb</sup> 157 x 67 x 20 x 19

Sept. 13

4012 ♂ ~~Sphen~~ *Sylvilagus nuttalli pinetis* <sup>testis 13mm</sup> 373 x 27 x 103 x 66 1.5 lbs.

4013 ♂ *Peromyscus maniculatus* 137 x 65 x 19 x 17

1 mi. S Bernardo, 5000 ft., Socorro Co., N.M.

Sept. 14

4014 ♀ *Peromyscus leucopus* <sup>no emb</sup> 172 x 84 x 23 x 17. 31g

4015 ♀ *Myotis yumanensis yumanensis* <sup>very fat</sup> 82 x 31 x 9 x 14 <sup>testis 13</sup> 8 gm.

4016 ♂ *Peromyscus leucopus* 169 x 81 x 22 x 17 29g.

4017 ♀ *Peromyscus leucopus* 181 x 82 x 21 x 17 35g.

4018 ♂ *Peromyscus leucopus* <sup>testis 11mm</sup> 172 x 85 x 22 x 16 25 gm

Sept. 15

4019 ♂ *Reithrodontomys megalotis megalotis* <sup>testis 8mm</sup> 31 x 70 x 18 x 14 11 gm

4020 ♂ *Sigmodon hispidus berlandieri* <sup>testis 18mm</sup> 249 x 103 x 29 x 19 87

Nov. 12

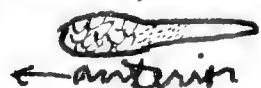
Orinda, Contra Costa Co., Calif.

4021 ♂ *Ensatina*

sperm in large  
anterior lobes  
no divisions seen

TL 128  
SA 61

Crossing road 7 hours  
after 1st rain of season. Testis 12 mm long  
epidid conspicuous.



← anterior

4022 ♂ "

Data as for 4021. SA 48 mm, TL 85  
gonad 8 x 1.2, white, uniform. a few gonial  
divisions but no sperm.

Nov. 13

4023 ♀ *aneides*

4024 ♂ "

second day of rain. crossing road in evening  
SV 65 mm. Ova 7 mm [0.7 mm]

testis 5 mm, covered with melanophores,  
looks 2-lobed. Epidid 2 mm with melanin.

4025 ♀ *Triturus torosus*

Ovary white, follic. hardly discernible  
SV 69 mm. first distinctly granular after  
being put into Bouin's.

4026 ♀ "

SV 74 follicles bigger than above, some  
about 2 mm; oviduct shorter, 1 mm, and pale  
parch instead of white.

sperm in dist. def.  
and some lobules  
a few not many - testis





1952  
1953

5

D. P. PEARSON

Mon. 14

4027 *Friturina*

many sperm, no testes seen

SV 79 mm. Testes 9 mm

March 25

4028

*Chinchilla laniger*

485 x 135 x 61 x 50 x 50 C

captured from Dr. D.W. Vanarsen, 1963 4th ave.,  
San Diego, via Dr. Nelson Wells. Testes atrophied  
Testes 17 mm, but sections 3 weeks ago showed no  
sperm or activity. Sem. ves. 30 mm but much thinner  
than in viscacha. Tattler P. 12



1954

6

P. PEARSON

Ford Point, Santa Rosa Island,  
Calif.

Feb. 9, 1954

4029 ♂ *Peromyscus maniculatus* 177 x 87 x 20 x 19  
Tapped Feb. 3 by Gus Rosenthal, brought home  
alive. Killed Feb. 9.

4030 ♂ " 156 x 78 x 20 x 19

Miller's Cabin, Clear Lake, Lake Co., Calif.

May 2, 1955

4031 ♀ *Myotis* 74 x 31 x 8 x 13

from P. Bledel

May 10, 1955.

4032 ♂ *Eptesicus*

Australia, Queensland, near Windsor

arrived dead in shipment from Peter Morrison

May 26, 1955

SKEL.  
ONLY  
4033 ♂ *Microtus* mouse (*Microtus pennsylvanicus*) 124 x 44 x 17 x 21

3 1/2 mi. N. San Rafael, Marin Co., Calif.

June 28

4034 ♂ *Reithrodontomys* *maniculatus* 160 x 82 x 17 1/2 x 16 10.2 g.

4035 ♂ " " 150 x 74 x 17 x 14 10.4 g.

4036 ♀ " " 150 x 75 x 17 x 14 10.0 g.



Journal



O. P. Pearson  
1952

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## Journal

Sept. 3 6 mi. E Truchas, 10,000 ft., <sup>Rio Arriba Co</sup> ~~Truchas~~ Co, New Mexico.  
Left Santa Fe about 10 a.m. after talking to National Park Service people and the National Forest Ranger — both of whom were little help in directing us to high country. Took a road into the Sangre de Cristo mtns. But here thru piñon-juniper, yellow pine, fir, then stopped a little beyond Borrego (end of road) in yellow pine. Didn't seem to be very high nor near the high peaks, so went out again and in the road towards Truchas Peak from the town of Truchas. This road goes up a nice little canyon with stream thru yellow pine into fir-spruce-aspen. Made camp near a wet meadow at end of road in fir, spruce, aspen. A few unoccupied log cabins here and fields of oats?, barley?, wheat?, potatoes, and a legume. altitude (by altimeter) says 10,000 ft. <sup>some yellow pine & alder.</sup>

Several bats flew up canyon at dusk, most of them flying straight. Shot one, a volans? & Jacklighting ~~some~~ nothing. Full moon, clear.

Put out about 24 Mus mus traps down an alder trickle, across a wet meadow, and along the edge of spruce-aspen.

Sept 4 Caught 1 Peromyscus and 3 Microtus overnight. Set 5 gopher traps in the morning and 2 steel traps. During the day caught two chipmunks, <sup>5</sup> gophers, and 5 Microtus. Bat shooting again at dusk and got 2 Myotis and 1 not yet retrieved. Temp. 41° at 5:45 a.m.

Sept. 5 a few Microtus in traps plus 1 chipmunk. Day mostly sunny. Walked about 1 mile up the canyon. Chickadees were





abundant than I have ever seen; also many chipmunks. Vegetation still thick fir, spruce, alder, aspen. Mouse trap line to wet meadow below camp and along stream in water stream sets — about 30 traps. Bats again at dusk but didn't get any.

Sept. 6 3 zapus in wet meadow and 2 Microtus. no shrews or Peromyscus. Left at 10:30 for Massachusetts. Went up our drainage for  $3\frac{1}{2}$  hrs and found myself on a thinly forested peak but separated from Truchas Peak by a saddle of at least 500 ft drop. The ridge to the west of camp or the drainage beyond that would have taken me up to Truchas Peak. My peak had an estimated altitude of 12,500 ft. and was mostly fragmented quartz growing to spruce and some fir, a few aspens still. Set 30 museum specials in steep rocky chute growing to broad-leaved alpine flowers and 14 of cross-country in open spruce burn. The chute had droppings of woodrats in the cliffs on the side and holes, cuttings, and tiny droppings of some peculiar Microtus? in the dense flowers. Birds seen: grouse (numerous), thrush, grosbeak, juncos, chickadee and robin (heard). Chipmunk and chickadee almost at top. Night didn't seem any colder than in our camp at 10,000 ft.

Sept 7 In traps 2 Peromyscus maniculatus and one Sorex. Left for home about 7:30 a.m. Trap line at home had 1 chipmunk, 2 zapus, about 3 Microtus and 1 Peromyscus. Rest of day skinning.



1952

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P. PEARSON

Sept 8 In my traps in the meadow 1 chipmunk, 3 Microtus, and 1 more Zapus. Picked up all and moved camp to 16 mi. NE Pojoaque. This is on the Borrego road in Cordova. Camp in yellow-pine near a meadow. Some fir and spruce, so probably approaching upper edge of transition. Altimeter says 8750 ft. Put out 40 museum specials along a ditch down the center of the meadow. Meadow is sparse grass + flowers (dry) plus much wild rose about 2 ft tall. Ditch with occasional patches of willow, green grass, and one clump of aspen with rose undergrowth. Some mouse signs. \*

Sept 9 Traps held 23 Peromyscus, 1 Sorex, 1 short-tailed Microtus. Later in the day a chipmunk and another shrew. [Bat shooting at dusk yielded 2 Eptesicus + 1 Myotis volans? for sighting saw nothing]

Left traps in same locations

Sept 10 Traps had 8 Peromyscus, 1 shrew. Light rain in afternoon. ~~Left~~ Left trap line out and put out 6 Schuyler's for woodrats along a rock outcropping where there were 2 large accumulations of rat droppings. Also porcupine droppings and girdled yellow pines.

Sept 11 Traps held 1 Sorex (stinko), 2 Microtus longicaudus, 7 Peromyscus, and 1 Zapus. The Zapus in the dry ditch in the meadow - sparse grass, annuals, wild rose, willow clumps, aspen further down. Bat gone from several of the Schuyler's - Peromyscus? Picked up the meadow line and put it along fence row in fallow field of weeds.



1952

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P. PEARSON

Sept 12 10 Peromyscus and 2 Chipmunks in the fallow field line. Many openings & empty in front of large holes, probably Callospermophilus, one of which shot nearby in a juniper bush. One rabbit in a steel trap set in front of a burrow and one Neotoma in the Schuylers along the rocky cliff. Also a treei there. Picked up the fallow field line and put 12 of them along the cliff to relieve pressure on the Schuylers. Half rain at bedtime.

Sept 13 Only Peromyscus up at the cliff. a young snow-shoe hare at the same burrow as yesterday's rabbit. Broke camp at 9:00 a.m. and drove to Bernardo, 50 mi. S. of Albuquerque, 4700 ft., along the Rio Grande. Camped in the "clubhouse" or duck-hunting shack (one-room schoolhouse) of adrey Borell at 4 p.m. Put out about 35 traps in thick mesquite near the river, mostly on land sometimes flooded; some grass cover and yellow-flowered weed. all sets for Zapus, a few bats at dusk. Got one Myotis? relhijer?

Sept 14 Seven Peromyscus in the traps, probably leucopus but no Zapus. Picked up traps and moved them to a thick grass meadow with a few mounds growing to mesquite. added 20 sherman live traps found in Borell's cabin. Also set 2 Muskrat traps. Numerous 'coon tracks and ? weird?



1952

5

D. P. PEARSON

- Nov. 12 Orinda. First rain of season fell about 10:30 a.m., then scattered heavy showers rest of day. Season is late this year. Since this was first rain, and a good one, it provides an unusually clear cut beginning to the rainy season. When I went home at 6:30 p.m. over Fish Ranch Rd. picked up 1 ♂ Ensatina (4021) and after supper 4 ♀♀? along Miner Rd.
- Nov. 13 Orinda. Heavy rain again off & on during the day. Drove about  $\frac{1}{2}$  mile of Miner Rd. after supper and picked up 4 Aneides, 2 Ensatina, and 5 Triturus (at least 2 of them torosus)





O. P. Pearson  
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- Feb. 20 Put out about 30 live traps <sup>in a.m.</sup> along Tunnel Rd, Orinda, across from Charles Hill Rd. Weedy patch. Some evidence of mice, especially eating teard leaves. Ran them in afternoon and had 3 Microtus and 1 mus. Ten traps across from Christian Science Church had 1 Microtus. Picked these up but left others.
- Feb. 21 In a.m. had 3 more Microtus, 1 more mus, and nine Perthos.
- Feb. 28 Put about 45 live traps in weedy places (grass-corn) on Orinda side of ridge along Inspiration Point road. Not much sign.
- Feb. 29 Caught 8 Peromyscus, 2 Perthos, 2 Microtus.
- March 6 With Bloedel + Lechertner to Marin Co. at noon set 104 traps (mostly live but some snap) at the marsh  $3\frac{1}{2}$  mi. NE ~~San Rafael~~ <sup>San Rafael</sup> ~~Marin Co.~~, then 32 at the half-moon marsh south of the road 1 mi. E of Corte Madera. Looked on the knoll west of ~~the~~ Route 101 at Corte Madera and found quite a bit of Microtus sign. Not as much sign as last year, but plenty. Pretty good sign at the other places also.
- Ran traps at San Rafael marsh at 4 and 7 p.m. score below.
- March 7 Picked up traps 9 a.m. Total score: 42 Microtus  
16 Perthos, 8 Peromyscus, 1 mus, 1 fox



SPECIES ACCOUNT  
BIRD



O. P. PEARSON

Species accounts - Anna Hummingbird  
Sept, 27, 1954



O. Pearson  
1954

Anna Hummingbird

Sept 27 Orinda - 7:45 a.m. PST. Two Anna hummingbirds squabbling near porch outside kitchen window. Frequent vertical climbing by both birds close together, beating their wings against each other (flying slowly straight up, not spiralling, usually within a foot of each other, some squeaking. Looked like a territorial dispute effort for the slow towering (sometimes 30 feet or more) and use of a single ported,  $\frac{1}{2}$ -second long whistle (vocal) that sounds like a soft version of the dive note. One bird was  $\sigma$ , other assumed to be male at first but later appeared to be  $\text{f}$ . After numerous (6-10?) towerings and some tumblings together they fell to the grass and after brief fluttering remained quiet.  $\text{f}$  lay on her back, wings outstretched, bill pointing up;  $\sigma$  with back up, lying slightly croc-like on her, wings outstretched, his bill lying on her primaries or possibly even holding them. I was watching through porch screen at 8 feet, Anita at 18 feet with binoculars. Birds remained thus for 9 minutes, the  $\text{f}$  not moving, the  $\sigma$  pulsating (wings & tail moving rhythmically) occasionally. When a sparrow appeared and hopped a few feet away they separated and resumed towering. After about 3 towerings and a few tumbles (over onto the ground for several seconds) they tumbled to the ground for 3 more minutes,  $\text{f}$  as before,  $\sigma$  directly on top of her with





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wings outstretched, 3 times the ♀ fluttered her wings as though to rise, but ♂ drove her down (held her down), beating his wings. Finally she broke free slowly over the wall and could not be relocated. The ♂ flew slowly to the fence 3 feet away, whistling softly, landed on fence and preened briefly, then fed and resumed his usual perching.

9:05 Female came into ♂ territory. He gave territorial chatter, then approached her closely and hovered about 1 to 2 ft. from her, ♂ giving this plaintive cry. She flew off (AKP)

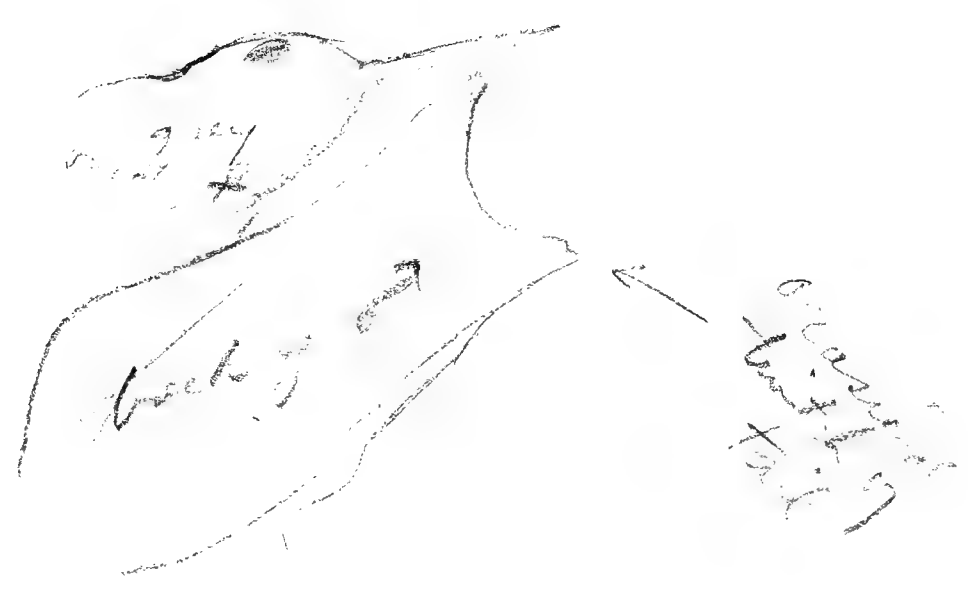
They made no sounds while on the ground.





1

A  
K





62

1

Handwritten notes and a small diagram. The diagram shows a curved line with a point labeled 'a' and a line segment labeled 'b'. Below the diagram, the word 'Coul' is written.

Handwritten notes, possibly a list or a set of instructions, including the word 'Coul'.

Handwritten notes at the bottom left of the page.







X













